IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK

NUANCE COMMUNICATIONS, INC., Plaintiff, v. INTERNATIONAL BUSINESS MACHINES CORPORATION Defendant.	:	NO. 16-CV-5173 (ECR)

PLAINTIFF NUANCE COMMUNICATIONS, INC.'S
SUPPLEMENTAL PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

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PROPOSED FINDINGS OF FACT

I. The Parties

1. Plaintiff Nuance Communications, Inc. ("Nuance") is a Delaware corporation with its principal place of business in Burlington, Massachusetts. *See* ECF No. 6 (Compl.) ¶ 10.

2. Nuance is a provider of voice recognition and natural language understanding solutions for businesses and consumers around the world. Declaration of Joseph Petro, Aug. 14, 2019 ("Petro Decl.") ¶ 4. Nuance offers unique technology enabled solutions that enhance user productivity, engagement, and customer satisfaction by combining the latest innovations in artificial intelligence with Nuance's deep domain expertise in fields like healthcare, enterprise, automotive, and imaging. *Id.*

3. Nuance's largest business segment is healthcare. *Id.* ¶ 5. More than 500,000 clinicians and 10,000 healthcare facilities worldwide leverage Nuance's solutions to improve patient care and support physicians in clinical work flows. *Id.*

4. Defendant International Business Machines Corporation ("IBM") is a New York corporation with its principal place of business in Armonk, New York. Compl. ¶ 11.

5. Nuance and IBM are parties to a Software License Agreement for DeepQA, dated September 30, 2010 ("SLA"). Stipulated Fact 1; JX001.

II. Background on DeepQA

6. DeepQA is "a software architecture for deep content analysis and evidence-based reasoning. It represents a powerful capability that uses advanced natural language processing (NLP), information retrieval, reasoning, and machine learning." *See* Declaration of Ronald S. Schnell, Aug. 14, 2019 ("Schnell Decl.") ¶ 33; *see also* PX001 at PX001.045. Further, "[t]he DeepQA architecture views the problem of automatic question-answering as a massively parallel hypothesis generation and evaluation task. DeepQA can be viewed as a system that generates a

wide range of possibilities and, for each, develops a level of confidence by gathering, analyzing, and assessing evidence that is based on available data." *See* Schnell Decl. ¶ 33; *see also* PX001 at PX001.045.

7. The DeepQA architecture is depicted in the figure below. *See* PX001 at PX001.059, fig. 4-5; Trial Tr. at 755:25-756:25 (Eric Brown testimony); Schnell Decl. ¶ 33.

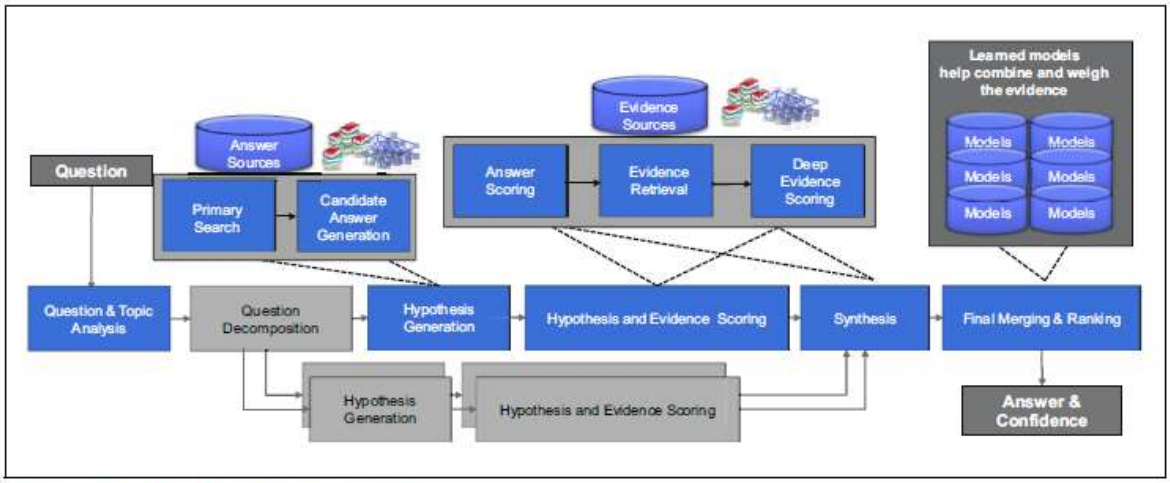

Figure 4-5 DeepQA high level architecture

8. DeepQA's purpose was not solely to compete on *Jeopardy!*. Trial Tr. at 257:12-14 (David McQueeney testimony); *id.* at 674:24-675:8 (Eric Brown testimony). Rather, IBM developed DeepQA as a test to see if techniques commonly known as artificial intelligence were mature enough to use on complex business products. *Id.* at 257:15-18 (David McQueeney testimony). The *Jeopardy!* challenge was considered a good surrogate for those problems and IBM hoped to use DeepQA for applications beyond just the *Jeopardy!* competition. *Id.* at 257:19-24.

III. Nuance Invests $25 Million in IBM's DeepQA Technology

A. IBM Wanted to Leverage An Investment From Nuance to Accelerate IBM's Development of Technology in the Healthcare Space

9. On June 3, 2010, IBM met with Nuance to showcase IBM's healthcare-focused technologies. Deposition of Jeanne McCann ("McCann Tr.") at 42:4-43:3; *see also* PX002 at

PX002.001 (showing attendees for Nuance including Nuance's CEO Paul Ricci, Vice President of Corporate Development, Helgi Bloom, and Executive Vice President of Operations, Jeanne McCann, and others); Trial Tr. at 145:20-146:14 (Helgi Bloom testimony). The purpose of the meeting was for Nuance to "better understand [IBM's] Healthcare [go-to-market] strengths and technology innovations in [the healthcare] space." PX002 at PX002.001.

10. IBM's Kevin Reardon called the meeting a "critical opportunity" to send a "strong message to Nuance" that "'IBM is making a very big bet in the Healthcare space … and we intend to win!! To do this, we are going to need to play big with partners … and we will play biggest with partners who invest with us and accelerate the use of IBM research and innovation into our Healthcare solutions.'" *Id.*

11. Mr. Reardon told his team IBM believed they could "build a[] . . . big partnership with Nuance in Healthcare," that would be "quite different" from what they did in the past in other Nuance partnerships. *Id*. Mr. Reardon explained that "[i]n Healthcare [IBM] need[ed] to lead with IBM's go-to-market approach . . . ." *Id.* He asked his team to be ready to "talk about how leveraging Nuance as a partner [could] be a game changer for IBM and Nuance," especially if they "team[ed] up to build out the joint technology solutions that [would] allow [them to] win big together." *Id.* at PX002.001-02. According to Mr. Reardon, if IBM could "convince Nuance of this," Nuance would be "willing[ ] to invest in IBM innovation to help [IBM] accelerate key IBM technologies . . . far beyond what [IBM could] afford to do on [their] own." *Id.* at PX002.002. Mr. Reardon also detailed that a "key objective" of the Nuance meeting was to "[d]emonstrate strong senior management commitment to this partnership from our top decision makers across the IBM Company." *Id.* at PX002.004.

12. IBM's "meeting plan," stated that the objective for the meeting was to "send Nuance . . . three key messages":

> *(1) "We are serious about health care and here is what our teams are doing to really lead and drive this business."*
> *(2) "Partners are critical to us and so therefore, off the bat, no matter what, 'Nuance, because you are in the Healthcare Industry you should be part of this ecosystem.'"*
> *(3) "Partners who invest in our technology and are willing to bring it to market and help us accelerate things that we are doing internally are really important to us, so therefore, if you are willing to do that as you have done in Speech and other areas, this will be huge and here is what we need to do to get you plugged right in."*

Id. IBM's "desired outcome" of the meeting was for "Paul Ricci's overall response to be: '*My gosh these guys are serious about this…they are out there worldwide selling to our markets and if I can plug into this channel—this is going to change the game for my business* . . . . We want to work with IBM to make it our lead dog in [go to market].'" *Id.*

B. IBM Told Nuance It Would Evolve DeepQA Beyond Jeopardy!

13. One of the technologies IBM presented to Nuance at the June 3, 2010 meeting was DeepQA, which was also known as the "Watson / Jeopardy system." *See* PX002 at PX002.007; McCann Tr. at 42:4-43:3; Declaration of Helgi Bloom, Aug. 14, 2019 ("Bloom Decl.") ¶¶ 7-8; Trial Tr. at 348:6-17 (Kevin Reardon testimony). At the meeting, IBM identified DeepQA as a potential technology that IBM and Nuance could partner on. Trial Tr. at 351:5-13 (Kevin Reardon testimony).

14. At the time, DeepQA was an early stage software system and architecture, which IBM was developing to intake a natural language question, understand the question and accurately find the answer from a broad domain of knowledge, including a corpus of structured and unstructured data. Declaration of Paul Ricci, Aug. 14, 2019 ("Ricci Decl.") ¶ 5; *see also* PX007 at

PX007.031. In 2010, IBM was specifically working on DeepQA to compete under the moniker "Watson" on the game show *Jeopardy!*. Ricci Decl. ¶ 5; *see also* Bloom Decl. ¶ 8.

15. IBM's Chalapathy Neti was scheduled to present DeepQA to Nuance at the June 3, 2010 meeting. PX002 at PX002.007. Ms. Neti's "key message" to convey to Nuance was that "[t]he IBM company ha[d] identified Healthcare as one of [their] big bets and [they were] going to pour tons of money into being innovative in this space." *Id.* at PX002.006.

16. The Watson / *Jeopardy!* segment of IBM's June 2010 presentation included a set of slides entitled "Adapting DeepQA Medical Content and Analysis," which "outlin[ed] a vision of where DeepQA could be applied to the medical space." PX005 at PX005.001 and PX005.005; *see also* McCann Tr. at 53:8-53:20; Trial Tr. at 593:3-23 (Kenneth King testimony).

17. Over the next few months, IBM met with Nuance several times to present or discuss DeepQA. *See* PX005 at PX005.001; Trial Tr. at 354:17-20 (Kevin Reardon testimony) (Q. So there were at least two meetings with Nuance [] where DeepQA came up prior to the licensing negotiations in September of 2010, right? A. Yes. Yes."); Bloom Decl. ¶ 9. At these meetings, and in accompanying presentations, IBM continued to highlight DeepQA's potential application in the healthcare field, as well as in the fields of electronics, financial services, life sciences, retail/consumer, and transportation. *See* PX005 at PX005.001; PX007 at PX007.042; Petro Decl. ¶¶ 6-13.

18. IBM publicly touted their vision for DeepQA after *Jeopardy!* as well. In a June 16, 2010 New York Times article entitled "What is I.B.M.'s Watson?" IBM's head of research, Dr. John Kelly was quoted as saying he wanted to "create a medical version of [DeepQA] . . . [a] Watson M.D., if you will," and, further, "something [he could] take into every other retail industry, in the transportation industry, you name it, the banking industry . . . [a]ny place where time is

critical and you need to get advanced state-of-the-art information to the front of decision-makers." PX007 at PX007.076.

C. IBM Approached Nuance to Monetize the DeepQA Technology in their Third Quarter

19. On September 12, 2010, Kevin Reardon approached Paul Ricci to discuss business opportunities before the end of IBM's third quarter, which was concluding on September 30, 2010. *See* Ricci Decl. ¶ 6; *see also* JX002 at JX002.002.

20. Mr. Reardon had already discussed certain deals in the $5,000,000 to $10,000,000 range with Ms. McCann, but Mr. Reardon wanted to "go bigger." Ricci Decl. ¶ 6; *see also* JX002 at JX002.002. Specifically, Mr. Reardon conveyed to Mr. Ricci that IBM was interested in a $15,000,000 to $20,000,000 deal with Nuance, and noted he was "willing to work personally and get aggressive to put together something attractive for [Nuance] in broader areas including OCR and Deep QA." Ricci Decl. ¶ 6; *see also* JX002 at JX002.002; Trial Tr. at 371:11-372:12 (Kevin Reardon testimony) (acknowledging the importance of getting a deal done before the close of the third quarter).

21. IBM wanted to sell Nuance a technology license at the time to realize a monetary benefit and report that benefit in its end of quarter financial results. *See* Ricci Decl. ¶ 9; *see also* Trial Tr. at 370:14-371:10 (Kevin Reardon testimony).

22. Mr. Reardon had a target associated with how much income to deliver to the IBM Research Group and IBM Corporation, and a deal with Nuance regarding DeepQA would help prevent a shortfall in meeting one or both of those commitments. Trial Tr. at 370:21-371:10 (Kevin Reardon testimony).

23. Mr. Ricci told Mr. Reardon that he was only willing to do a deal in the third quarter if it was "genuinely strategic for [Nuance]." Ricci Decl. ¶ 7; *see also* JX002 at JX002.001. Mr.

Reardon understood Mr. Ricci to mean that any deal would have to be something that was going to be a significant competitive advantage for Nuance that had a long-term value. Trial Tr. at 372:18-373:4 (Kevin Reardon testimony). Mr. Reardon suggested DeepQA was "the best candidate for a big strategic play." JX002 at JX002.001; Ricci Decl. ¶ 8.

24. Ms. McCann was the lead businessperson from Nuance on the SLA negotiations. McCann Tr. at 41:13-15. Her team included Vlad Sejnoha, Helgi Bloom, and Nuance's in house counsel, Leanne Fitzgerald. *Id*. at 70:3-71:10. Joseph Petro, Nuance's head of R&D for the healthcare group, participated as well. *Id*. Finally, Paul Ricci was also involved due to the scale of this opportunity for Nuance. *Id.*

25. The IBM SLA team included Kenneth King, Kevin Reardon and IBM's in house counsel Ellen Cox. McCann Tr. at 71:11-72:2. John Kelly and Charles Lickel also participated. *Id.*

D. IBM Represented That It Would Make Substantial Investments to Develop DeepQA and a Single Unified Core Codebase

26. After IBM approached Mr. Ricci about licensing DeepQA, Mr. Ricci told his executive team he was "resolved not to do anything [in the third] quarter, but [IBM] put on the table the IP associated with their DeepQA technology". *See* Ricci Decl. ¶ 11; *see also* PX007 at PX007.002. Mr. Ricci asked the team to consider whether Nuance should invest in DeepQA. Ricci Decl. ¶ 11; *see also* PX007 at PX007.002-03. He noted that he was particularly interested in two possibilities for DeepQA, an application in the health and medical field and also a mobile initiative. Ricci Decl. ¶ 11; *see also* PX007 at PX007.003. The mobile initiative included, for example, using speech on mobile phones for directed search. Ricci Decl. ¶ 11.

27. Mr. Ricci conveyed to his team that "the application of [the DeepQA] technology to the medical field" was something that IBM's John Kelly "brought up," and IBM was "keenly interested in." *Id.* at ¶ 12; *see also* PX007 at PX007.003. Mr. Ricci was also interested in a medical

application of DeepQA given Nuance's involvement in the healthcare space, and based on IBM's enthusiasm about developing this use-case. *See* Ricci Decl. ¶ 12; *see also* PX005; JX002; PX007.

28. In response to Mr. Ricci's email, Jeanne McCann, who was "leading [the] efforts" on the potential transaction, PX007 at PX007.003, circulated the materials IBM had already provided to Nuance. *Id.* at PX007.002. These included a "DeepQA Overview for Nuance," entitled "Building Watson, A Brief Overview of the DeepQA Project," *id.* at PX007.002, PX007.006, as well as slides outlining IBM's "future view of ideas for applicability to healthcare [IBM] presented when the Healthcare team visited IBM," *id.* at PX007.002, entitled "Adapting DeepQA Medical Content and Analysis," *id.* at PX007.004, and the New York Times article quoting John Kelly. *Id.* at PX007.067. Ms. McCann suggested that her team "arrang[e] session(s) with IBM to review and dive more deeply into the program and Q&A around applicability with other use-cases, for the divisional teams." *Id.* at PX007.002.

29. Because DeepQA was still in its early stages of development, the goal of Nuance's diligence was to determine whether they could, over time, leverage DeepQA in other, non *Jeopardy!* use cases. *See* Petro Decl. ¶ 7; Bloom Decl. ¶ 13; McCann Tr. at 86:4-87:16; Trial Tr. at 105:4-20 (Joseph Petro testimony) (noting that, in addition to healthcare, Nuance was interested in whether DeepQA could apply in the enterprise, auto or mobility *domains*); *id.* at 675:24-676:6, 676:25-677:4 (Eric Brown testimony); PX015 at PX015.004 (Nuance asking "How can the techniques and approaches might apply to different domains and use cases, in part or in whole (versus which are relatively specific to Jeopardy topics and use case)?"); *see also* Trial Tr. at 342:7-9 (Kevin Reardon testimony) (Q. The game show *Jeopardy!* wouldn't be useful in the healthcare space, right? A. I wouldn't think so, no.").

30. IBM repeatedly represented its commitment to tak[ing] DeepQA "beyond just Question and Answer," PX005 at PX005.001, and "Above and Beyond *Jeopardy!*," PX007 at PX007.041, to other industries including healthcare. McCann Tr. at 53:8-53:20 ("IBM presented…about potential uses in more business domains, one of which was healthcare"); *see also* PX007 at PX007.041 ("next steps" for DeepQA, included "how to impact real-world Business Applications with DeepQA technology"); PX011 at PX011.045; Trial Tr. at 358:16-359:2 (Kevin Reardon testimony) (discussing PX011.045 and testifying that "the technology that underpins DeepQA is – we believed could potentially be used and modified to be able to go into some of those areas, yes").

31. IBM also repeatedly outlined its plan to invest in and "[e]volve the DeepQA [a]rchitecture." *See* PX007 at PX007.055; *see also* McCann Tr. at 53:8-53:20 ("IBM presented…about potential uses in more business domains, one of which was healthcare"). For example, in a presentation entitled "Building Watson, A Brief Overview of the DeepQA Project," IBM described its vision of DeepQA as a "common architecture and platform for intelligent [question and answer] systems," PX007 at PX007.041, with "an extensible general purpose capability." *Id.* at PX007.055.

32. IBM further represented that it was encouraging "[e]xtreme [c]ollaboration" by implementing a "One Room" approach to "optimize team work and communication" and providing "[i]mmediate access to the right 'expert'" so "no good idea [would be] lost." PX007 at PX007.046. IBM explained to Nuance that this meant all the work IBM planned to do to evolve and improve DeepQA and its functionality would flow into a common, universal core. *See* McCann Tr. at 95:8-97:7; Ricci Decl. ¶ 21; PX011 at PX011.093 ("No more one-offs – looking for an extensible general purpose capability."). As IBM stressed, the team developing DeepQA

would work on it together. Trial Tr. at 361:23-362:18 (Kevin Reardon testimony) ("everyone had the same goals, extreme collaboration, everyone worked closely together . . . these are the criteria that they used to help the team do its job efficiently").

33. The point of a single core is to build a universal platform that benefits from all of the focus around evolving that platform to solve problems generally. Ricci Decl. ¶ 21. Having all updates and improvements flow into a central, common core repository is industry standard practice in software development and makes perfect sense as it is most efficient to develop source code in one environment. *Id.*; Trial Tr. at 707:19-21 (Eric Brown testimony) (Q. It's better to have a single common core than multiple cores, right? A. Ideally, yes."); July 28 Trial Tr. at 52:2-17 (John Kelly testimony) (testifying it is IBM's "standard" and "common" practice "to have a single code set and have whatever improvements are being made flow into that code set"); *id.* at 101:10-102:18 (Rob High testimony) (noting that the DeepQA core was "brought in and used originally with the intention of that being the core of all the product offerings that we were going to create – going to create in the Watson Division"); July 30 Trial Tr. at 158:6-9 (Christian Hicks testimony) (agreeing that, from a computer science standpoint, it is preferable to maintain a single code base); Schnell Decl. ¶ 158 ("It is also standard practice in the industry to have a common core across products that share core functionality.").

34. IBM also represented that an immense team of engineers would be working on improving and extending the core DeepQA architecture "Above and Beyond Jeopardy!" PX007 at PX007.041, PX007.043. This was important to Nuance as having the same engineers who initially developed the technology assist with updating the technology improves the likelihood of success with that technology. Trial Tr. at 226:2-227:10 (Helgi Bloom testimony) ("[W]e did a lot of acquisitions in those days and certainly had learned the lesson that if you acquire a body of code

without having access to the people who worked on that code, your risk of failure was much higher. So, having ongoing access to the code, and, as I said, having some sort of partnership, was important to us. It was -- our likelihood of success with that body of code without access to the ongoing work was just not, not very good."); *id.* at 481:5-18 (Paul Ricci testimony) ("It's very difficult to do without, without advice from the people who developed the technology").

35. The ability to commercialize the DeepQA technology was key to Nuance's investment, so Nuance focused its investigation on what would come after *Jeopardy!*. Bloom Decl. ¶ 13.

36. Nuance made clear, and IBM understood, that Nuance did not want to use DeepQA to play *Jeopardy!*; Nuance wanted to use DeepQA outside of the *Jeopardy!* domain. Trial Tr. at 46:7-19 (Joseph Petro testimony) ("Every single person involved from IBM and Nuance actually knew it, that we didn't want a DeepQA type of a tool to solve a *Jeopardy!* problem."); Declaration of Kevin Reardon, Aug. 12, 2019 ("Reardon Decl.") ¶ 12 ("I knew, of course, that Nuance wouldn't be interested in DeepQA for the purpose of winning a round of Jeopardy."); Trial Tr. at 341:19-23 (Kevin Reardon testimony) ("I – I did not think they [Nuance] were going to play Jeopardy! with DeepQA, no."); Trial Tr. at 593:24-594:3 (Kenneth King testimony) ("Q. And you understand in September 2010 that Nuance wasn't interested in licensing DeepQA to play Jeopardy, right? A. Correct. Q. Nuance wanted to use DeepQA for other fields, correct? A. Correct."); Trial Tr. at 675:9-11 (Eric Brown testimony) ("Q. And you also understood that Nuance was interested in applying DeepQA beyond Jeopardy!, right? A. Yes."); July 28 Trial Tr. at 28:15-17 (John Kelly testimony) ("Q. You highly doubt that Nuance was going to play Jeopardy? A. I highly doubt it.").

37. Specifically, Nuance was most interested in "whether or not [] DeepQA could be applied to the healthcare domain" and IBM fully understood the importance to Nuance of whether DeepQA could be applied in the healthcare space. Trial Tr. at 39:25-41:12 (Joseph Petro testimony); *id.* at 257:7-11 (David McQueeney testimony) (noting that IBM knew Nuance "had an interest in whether the DeepQA technology was capable of handling applications in the medical domain."); *id.* at 374:17-23 (Kevin Reardon testimony) ("I know that they wanted to use the technology to further their business and they were in the healthcare space, yes."); *id.* at 592:10-23 (Kenneth King testimony).

38. In the weeks that followed, Nuance engaged in due diligence and participated in several technical "deep dives" with the IBM team on DeepQA. *See* Bloom Decl. ¶¶ 13-14; PX009 at PX009.001; Trial Tr. at 39:25-41:12 (Joseph Petro testimony) (testifying that "most of the time we spent during that two-week period leading up to the signing of the SLA was with Dave Ferrucci's team, getting relayed conversations from John Kelly about whether or not this could actually be applied to healthcare in general.").

39. These "deep dives" included discussion of how DeepQA worked and "how it applied to certain other domains and how it could be adapted." Trial Tr. at 36:11-15 (Joseph Petro testimony); *id.* at 594:6-596:21 (Kenneth King testimony) (discussing questions posed by Nuance's Jeanne McCann and how Nuance was looking to how DeepQA could be applied outside of Jeopardy); PX011; PX014.

40. Nuance's due diligence focused on, among other things, "[h]ow [] the techniques and approaches might apply to different domains and use cases, in part or in whole (versus which are relatively specific to Jeopardy topics and use case)?" and "[h]ow integrated could the DeepQA technology elements be with other workflows?" PX009 at PX009.001-02. Nuance asked about

DeepQA's "[a]pplicability to other domains" and aimed to secure an "understanding of the modules we would get," as "[w]e obviously ha[d] to figure out what it would take to apply this to medical diagnosis, retail-banking customer care, [and] mobile search." PX009 at PX009.002. Nuance also asked about what "size and makeup of team(s)" would be "needed to drive this [both for Nuance internal use and for what I imagine would be a substantive truly joint program]." PX009 at PX009.002. These questions reflected Nuance's concern about the ability to apply DeepQA outside a *Jeopardy!* use case. *See* Trial Tr. at 36:3-36:15 (Joseph Petro testimony) (purpose of sending the "list of questions" was to learn "how DeepQA worked … [and] how it applied to certain other domains and how it could be adapted"); *see also* McCann Tr. at 55:17-56:16 (McCann noting that the negotiations were subject to the due diligence process to determine applicability of the technology in Nuance's business).

41. At the first technical deep dive, or "Deep QA Briefing," on September 16, 2010, IBM walked Nuance through updated presentations on DeepQA and addressed some of the questions sent over by Nuance. PX008 at PX008.001; PX010 at PX010.001; PX011 at PX011.001, PX011.044.

42. The September 16, 2010 presentation listed the core technical team, *see id*. at PX011.046, and again noted that IBM's development methodology would involve "[e]xtreme [c]ollaboration" implemented as "[o]ne [r]oom" in order to "optimize team work and communication" on DeepQA. *Id*. at PX011.079; Trial Tr. at 359:18-360:16 (Kevin Reardon testimony) (discussing that there was a "core technical team" in IBM Research responsible for the development work on the DeepQA that ended up playing *Jeopardy!*). Once again, IBM stressed that there would be a common, unified code base, which would benefit from the work of all the groups within IBM and, by virtue of the software licensing agreement, be provided to Nuance.

McCann Tr. at 95:8-97:7; PX011 at PX011.093 ("No more one-offs – looking for an extensible general purpose capability."); Ricci Decl. ¶ 15.

43. The September 16, 2010 presentation further discussed specific "Potential Business Applications," including "Healthcare / Life Sciences: Diagnostic Assistance, Evidenced-Based, Collaborative Medicine; Tech Support: Help-desk, Contact Centers; Enterprise Knowledge Management and Business Intelligence; [and] Government: Improved Information Sharing and Security." PX011 at PX011.045.

44. The presentation also highlighted—again—IBM's specific vision for extending DeepQA in the medical field with a new set of slides entitled "DeepQA in Automated Medical Diagnostic Assistance" *see id.* at PX011.048. IBM explicitly acknowledged that "Nuance [was] interested" in an "Evidence Based Medicine Diagnosis Support, Hypothesis Generation and Test" application. *See id.* at PX011.110.

45. Finally, the September 16, 2010 presentation detailed DeepQA's "[t]echnical [d]irections," which outlined IBM's purported strategy for DeepQA's advancement, including "Application Driven Research – Solve Real Problems – Evolve the Architecture." *Id.* at PX011.093.

46. On September 20, 2010, Nuance sent additional due diligence questions to IBM regarding DeepQA's core technology and applicability to other domains, among other items, which IBM's Mark Overman circulated to Kevin Reardon, Kenneth King, David Ferrucci and others. PX014 at PX014.002; PX015 at PX015.002; Trial Tr. at 594:6-596:21 (Kenneth King testimony). Mr. Overman relayed that Ms. McCann also asked for another call with IBM to help Nuance "feel more comfortable about how DeepQA will have an impact on [Nuance's] business." PX014 at PX014.002.

47. IBM's written responses to Nuance's questions acknowledged the need to address significant gaps in the DeepQA technology before it had any real commercial potential. *See* PX015 at PX015.002; PX016 at PX016.001. For example, IBM admitted that it still had to "figure out what it would take to apply [DeepQA] to medical diagnosis, retail-banking customer care, [and] mobile search," and that "[a]ddressing new domains . . . follow[ed] a process [they had] just begun to rough out." PX016 at PX016.004.

48. IBM's consistent message to Nuance, however, was that IBM would invest in DeepQA to fill the gaps over time, so both parties could achieve and share in real commercial suitability, and that Nuance would share in these improvements. *See* McCann Tr. at 58:21-63:20; Trial Tr. at 538:18-539:8 (Paul Ricci testimony) ("IBM represented that it was going to do a series of things that included the execution of the evolution of the DeepQA consistent with the presentation that's referenced here, consistent with the representations made by John Kelly at the September 29th meeting, and consistent with all the engineering discussions that include detailed discussion of which kinds of particular or expert AI engineers were going to be assigned. That's my understanding.").

49. For example, Mr. Reardon and Dr. Kelly represented to Nuance on more than one occasion that, although DeepQA was still in its early stage and would require significant work, IBM's intention was to continue investing in and improving DeepQA, and that Nuance would benefit from all of these improvements. Trial Tr. at 538:18-539:8 (Paul Ricci testimony); Bloom Decl. ¶ 16; Ricci Decl. ¶ 17; Petro Decl. ¶ 12; Trial Tr. at 128:18-129:8 (Joseph Petro testimony) (Mr. Petro testifying that he is "a hundred percent positive" that, prior to the SLA being signed, Dr. Kelly made a "representation to [him] personally that IBM would invest significant resources in DeepQA").

50. IBM, including through Dr. Kelly and Dr. Ferrucci, also represented to Nuance that DeepQA could be applied in the healthcare space. Petro Decl. ¶ 10; PX008 at PX008.002-03; Trial Tr. at 61:15-24 (Joseph Petro testimony) (detailing the representations made during the September 16, 2010 WebEx including that "Dave Ferrucci was the spokesman on the WebEx . . . [w]e went through the presentation. First two slides of the presentation was something to the effect of how DeepQA could be adapted to the medical domain"); *id.* at 106:12-18 ("Q. Do you have any doubt in your mind that IBM made these representations to you about DeepQA's ability to be applied in the healthcare space? A. A hundred percent confident that they made these. Q. And who made these representations to you? A. Again, it was that team on the -- team on the phone with -- with Ferrucci leading it."); *see also id.* at 39:25-42:1 (Joseph Petro testimony) ("All the representations from IBM, all of the conversations we had with IBM, were targeted at that, could the technology be applied. And the technology was a general Q and A type of solution. We agreed, David Ferrucci agreed, John Kelly agreed, our internal teams agreed" that "DeepQA could be applied to the healthcare domain.").

51. Mr. Reardon, Charles Lickel, and Dr. Kelly, among others at IBM, also represented to Nuance's Ms. McCann, Mr. Ricci, Mr. Sejnoha, and Mr. Petro that IBM Research and other IBM divisions would work together to rapidly improve the technology and that such improvements would flow into a common, universal core code base that would be provided to Nuance. *See* McCann Tr. at 95:8-97:7; Ricci Decl. ¶ 21; Petro Decl. ¶ 16; *see also* Deposition of Vladimir Sejnoha ("Sejnoha Tr.") at 111:2-12.

52. In fact, IBM consistently portrayed to Nuance that all updates to DeepQA developed anywhere within IBM, including work performed to improve the functionality underlying the DeepQA pipeline, such as question analysis, hypothesis generation and scoring,

and final merger and ranking, *see* Sejnoha Tr. at 31:4-9, would flow back to that common core code, and, if Nuance licensed the code, to Nuance. McCann Tr. at 95:8-97:7, 101:2-16 ("Q. . . . Did anybody at IBM . . . say to you or anybody at Nuance, in words or substance, that to the extent any division outside of IBM Research made improvements to the domain-independent core that that work product would flow to Nuance? A. Yes. Q. Okay. Who said that? A. Kevin Reardon, in representing how that technology would flow. I don't recall Dr. Kelly getting into that specific. Charles Lickel from IBM Research, the DeepQA team at IBM, when they were representing that. Yes."); Ricci Decl. ¶ 21.

53. Prior to the SLA, there was no discussion between IBM and Nuance regarding "forking" the DeepQA source code. July 28 Trial Tr. at 11:4-6 (John Kelly testimony).

54. Nuance would not have entered into SLA but for IBM's promises that the codebase would evolve and adapt such that DeepQA would work in domains outside of *Jeopardy!*, including healthcare, and that Nuance would receive these improvements if it licensed DeepQA. Petro Decl. ¶ 11; Trial Tr. at 51:7-16 (Joseph Petro testimony); Ricci Decl. ¶¶ 12, 22-23; Bloom Decl. ¶ 28.

E. Nuance Insisted Upon All Updates to the DeepQA Code, Including Updates Developed Throughout IBM and New Code

55. On September 17, 2010, IBM provided the first draft of the SLA to Nuance. *See* JX004. IBM's first draft did not include a provision regarding updates or upgrades to DeepQA. *Id.* at JX004 at JX004.030-31.

56. Because of the lack of an updates provision, IBM's first draft of the SLA was a nonstarter for Nuance. Bloom Decl. ¶ 21; Trial Tr. at 185:18-21 (Helgi Bloom testimony).

57. As IBM was aware, Nuance was not interested in DeepQA as it existed in September 2010—tuned to play *Jeopardy!*—and needed access to IBM's future work in order to build their own commercial applications and products. McCann Tr. at 60:11-61:2; *see also* Bloom

Decl. ¶ 19; Trial Tr. at 568:4-17 (Paul Ricci testimony) ("Q. Did you think you were paying $25 million just to get updates to the *Jeopardy!* game? A. No."); Reardon Decl. ¶ 12 ("I knew, of course, that Nuance wouldn't be interested in DeepQA for the purpose of winning a round of *Jeopardy!* . . . ."); Trial Tr. at 359:3-11 (Kevin Reardon testimony) ("Q. And since DeepQA was created specifically for *Jeopardy!*, you would agree with me that DeepQA would need to be modified, at least to some degree, in order to apply it to things like healthcare or tech support and the other things that are listed on this document, right? A. The technology that made DeepQA possible, yes, would have to be modified or it would have to be reconfigured or things would have to be added to it to be able to use it in these areas."); Deposition of Alberto Morello ("Morello Tr.") at 16:25-17:14 ("Nobody in real life wants to use a product that you give it a question, it gives you an answer as the form of Jeopardy is"); July 28 Trial Tr. at 28:15-21, 29:6-12 (John Kelly testimony) (noting that the DeepQA source code "could not be used to meet any of the vision" he discussed with Paul Ricci and that it would "take a fair amount of work" for anyone "to build an artificial intelligence product based on the state of the [DeepQA] technology in September 2010").

58. On September 21, 2010, Ms. McCann forwarded Helgi Bloom the draft SLA, and noted in her email that the primary "[i]ssue area[] off the top" was "Updates/upgrades not included." Bloom Decl. ¶ 21; *see also* JX005 at JX005.001. Mr. Bloom agreed Nuance "ha[d] to get upgrades," given the "long time horizon"—"2-3 years of intense research to get to the diagnostic problem" Nuance was interested in (and could monetize)—"and [Nuance's] inability to advance the work [them]selves." Bloom Decl. ¶ 21; *see also* JX005 at JX005.001. Mr. Bloom also noted that without updates "why do the deal this Q?" Bloom Decl. ¶ 21; *see also* JX005 at JX005.001.

59. On September 23, 2010, Nuance circulated an "issues list" to IBM's Mark Overman, Kenneth King, Kevin Reardon, and Ellen Cox. McCann Tr. at 129:9-131:3; Bloom Decl. ¶ 22; *see also* JX006 at JX006.003. The first item on the "issues list" was, "Updates/Upgrades not included in agreement draft." McCann Tr. at 129:9-131:3; Bloom Decl. ¶ 22; *see also* JX006 at JX006.003.

60. The RTTS agreement was a prior license agreement between Nuance and IBM that entitled Nuance to updates to the licensed software from all of IBM. *See* DX-047 at DX-47-028; McCann Tr. at 78:10-79:2, 236:21-237:4; Trial Tr. at 606:18-21 (Kenneth King testimony) ("Q. My question is: Both the RTTS Agreement, which is DX-47, and the Source Code License Agreement, DX-48, are between IBM and Nuance, correct? A. Correct."); Bloom Decl. ¶ 22; Trial Tr. at 229:13-231:8 (Helgi Bloom testimony) (discussing IBM Corporation being the signatory of the RTTS Agreement and the entity providing updates); Petro Decl. ¶ 17.

61. In response to IBM's initial draft SLA not including an updates provision, Nuance insisted on having the same updates obligation from the RTTS agreement in the SLA. *See* JX006 at JX006.003; McCann Tr. at 129:9-131:3 (testifying that Nuance "required" the same updates provision as in the RTTS agreement as part of the SLA); Bloom Decl. ¶ 22; Trial Tr. at 228:22-229:12 (Helgi Bloom testimony).

62. During the SLA negotiations, Nuance explicitly told IBM that Nuance expected updates to come from all of IBM, and not only IBM Research Group. Bloom Decl. ¶ 22; *see also* McCann Tr. at 78:10-79:2; Ricci Decl. ¶ 28; Deposition of Ellen Cox ("Cox Tr.") at 58:7-59:10 (admitting that during the SLA negotiations, Jeanne McCann wanted DeepQA updates to be "as broad and as long as she could get"); Trial Tr. at 178:4-14 (Helgi Bloom testimony) (testifying that getting updates from all of IBM and not only IBM Research Group "was among the most

important points to us in this negotiation. . . . I mean, that was critical, and I think Jeanne and I both made that point."); *id.* at 178:22-179:6 ("Q. Do you, as you sit here now, have a specific recollection, like a videotape, of either you or Jeanne saying, our expectation is that updates will come from all of IBM, not only IBM Research Group? A. Yes, I said that. Yes, Jeanne said that."); *id.* at 226:2-7 (explaining that during the SLA negotiations, it was "critically important" to Nuance that the update provision was tied to IBM).

63. Part of why Nuance wanted updates from all of IBM was that Nuance "fully expected the DeepQA technology to move within IBM, and it was important to [Nuance] that any obligations under the SLA be attached to IBM and not to a division." Trial Tr. at 166:2-11 (Helgi Bloom testimony); *see also id.* at 154:12-20 ("IBM [R]esearch is not in the habit of – of commercializing technologies . . . . The technologies flow from IBM [R]esearch into other arms of IBM and – and are ultimately taken to market. It was [Nuance's] view that – that in all likelihood, any successful commercialization of [DeepQA] would necessarily need to include IBM at large, not IBM [R]esearch just exclusively."); *see also* Trial Tr. at 343:17-24 (Kevin Reardon testimony) (agreeing that it was only after Watson won Jeopardy! in 2011 that IBM began to think about productizing the DeepQA technology).

64. Nuance also required updates because Nuance understood that the technology was "two to three years away from being ready for commercialization" at the point of the SLA and Nuance wanted to make sure "we had access to everything." Trial Tr. at 225:4-226:1 (Helgi Bloom testimony); *see also* Trial Tr. at 117:10-118:3 (Joseph Petro testimony) ("It was a very long road from the state that DeepQA was in to what we call fully productionized software. And so what I mean by that is, you know, when – when you develop a prototype or something very, very specific or a pilot for a very specific niche in the industry, and you're trying to get it to market, like they

were with, you know, the DeepQA for *Jeopardy!*, there's spaghetti code in it, there's memory management errors, there's space management problems, there's performance issues, there's scalability and supportability issues.").

65. Nuance also explicitly told IBM that Nuance expected updates to include new code. *See* PX019 at PX019.002.

66. For example, in an email to Mr. Overman on September 24, 2010, Ms. McCann sought "to ensure that the updates/upgrades/modifications language [was] sufficiently robust to include in new components or modules for the core [DeepQA] system," and noted she "read it that way" but wanted "an attorney or three to assess." PX019 at PX019.002. Mr. Overman responded "Yes . . . we'll need a few attorneys." PX020 at PX020.001.

67. On September 24, 2010, IBM circulated a new draft SLA, which included an updates provision. *See* PX018 at PX018.244-45. This draft of the SLA included a revised definition of "Licensed IBM Background Software," which read:

> (a) all Software that exists as of the Effective Date in all available formats (including Source Code and Object Code) that is owned by, or that has been developed or licensed by the IBM Research Group, including Tools, and that is listed on Exhibit A, including any modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools, other changes, if available as of the Effective Date and thereafter for a period of X (X) years, and additional Software as agreed by the parties, provided to Nuance ***by IBM*** under the Agreement (collectively "Updates"); provided such Updates, if available, will be delivered every six (6) months from the Effective Date . . . ."

Id. at PX018.244-45 (emphasis added). IBM made these changes to the draft SLA as a result of discussions and negotiations between the parties. *See* Trial Tr. at 384:15-25 (Kevin Reardon testimony).

68. The definition of Licensed IBM Background Software in PX018 makes clear, consistent with the parties' prior discussions, that the Updates would be provided to Nuance by IBM, and not only IBM Research Group. *See* PX018 at PX018.244-45; *see also* PX018 at

PX018.022 ("As used in this Agreement, all references to 'IBM' mean IBM Corporation, unless otherwise expressly limited to a division or group of IBM Corporation herein.").

69. After receiving the new SLA draft, Ms. McCann sent a revised "issues list" back to IBM on September 27, 2010, indicating that Updates were being provided but noting that the parties still needed to determine the duration of the updates provision. JX010 at JX010.003.

70. Over the next few days, Nuance and IBM exchanged additional drafts of the SLA. Bloom Decl. ¶ 23. In PX023, for example, IBM suggested a definition of Licensed IBM Background Software that included a five year Updates term:

> Licensed IBM Background Software means (a) all Software that exists as of the Effective Date in all available formats (including Source Code and Object Code) that is owned by, or that has been developed or licensed by the IBM Research Group, including Tools, and that is listed on Exhibit A, including any modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools, that are JDBC compliant, and other changes, if available as of the Effective Date and thereafter for a period of ~~X (X)~~ five (5) years, and additional Software as agreed by the parties, provided to Nuance by IBM under the Agreement (collectively "Updates"); and (b) all Software Materials for such Software.

PX023 at PX023.038.

71. In JX016, IBM's lawyer, Ms. Cox circulated a further revised draft of the SLA, which reflected Nuance's insistence on ten (rather than five) years of Updates:

> Licensed IBM Background Software means (a) all Software that exists as of the Effective Date in all available formats (including Source Code and Object Code) that is owned by, or that has been developed or licensed by the IBM Research Group, including Tools, and that is listed on Exhibit A, including any modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools, that are JDBC compliant, and other changes, if available ("Modifications"), and if such Modifications are not contractually prohibited under a Third Party agreement, and such Modifications are available, will be timely provided to Nuance, and where the Modifications continue to meet the scope contemplated in Article 2.1 regarding the licensing of DeepQA under this Agreement, as of the Effective Date and thereafter for a period of ten ~~X (X) five (5)~~ (10) years, and additional Software as agreed by the parties, provided to Nuance ***by IBM*** under the Agreement (collectively "Updates"); and (b) all Software Materials for such Software.

JX016 at JX016.259 (emphasis added). The parties' addition of other language to the defined term did not change the fact that the Update obligation extended to all of IBM. McCann Tr. at 125:21-126:14; Cox Tr. at 147:5-23 ("Q. [The modifications provision] does not say that modifications are only included if they are developed by IBM Research Group; correct? A. This provision does not say that; that's correct."); *id.* at 149:13-19 ("Q. But you agree that the modification provision in the definition of 'licensed IBM software' did not specifically state that it is limited to modifications developed by IBM Research Group? A. Correct. The words in the contract don't say that, correct, in that provision.").

72. In a September 30, 2010 draft, the parties also amended Section 2.4 of the SLA, at Nuance's request, to state: "If ***IBM*** provides any modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools and other changes to the Licensed IBM Background Software, ***IBM*** will update Exhibit B to include any additions or subtractions to the Open Source Software or the Third Party Code." PX028 at PX028.002 (emphasis added). This ensured that if Updates provided by IBM required open source software or third party code to work, IBM would tell Nuance what they needed. *See* McCann Tr. 73:7-74:6. IBM understood that the language in Section 2.4 of the SLA was tied to the update language that was added to the definition of Licensed IBM Background Software. *See* Trial Tr. at 391:20-392:15 (Kevin Reardon testimony).

73. On September 30, 2010, IBM circulated the final draft in redline form. *See* Bloom Decl. ¶ 23; *see also* JX016 at JX016.259. The draft gave Nuance a license to:

> (a) all Software that exists as of the Effective Date in all available formats (including Source Code and Object Code) that is owned by, or that has been developed or licensed by the IBM Research Group, including Tools, and that is listed on Exhibit A, including any modifications updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools, that are JDBC compliant, and other changes, if available ("Modifications"), and if such Modifications are not

> contractually prohibited under a Third Party agreement, and such Modifications are ~~so~~ available, will be timely provided to Nuance, ~~and are as long as not and if contractually prohibited under a Thpermissibleird Party agreement~~, and where the Modifications ~~to~~ continue to ~~further~~ meet the scope contemplated in Article 2.1 regarding the licensing of Deep QA under this Agreement, as of the Effective Date and thereafter for a period of ten ~~X(X)five~~ (10~~5~~) years, and additional Software as agreed by the parties, provided to Nuance ***by IBM*** under the Agreement ("collectively "Updates") . . . ."

See Bloom Decl. ¶ 23; see also JX016 at JX016.259 (emphasis added). This version ultimately ended up in the final SLA.

74. IBM understood that getting updates and upgrades to DeepQA was an important issue to Nuance. Trial Tr. at 377:25-378:2 (Kevin Reardon testimony); *see also id.* at 600:25-601:3 (Kenneth King testimony); JX006 at JX006.003.

75. During the negotiations, nobody from IBM ever told Nuance that Nuance would only be entitled to updates developed by IBM Research Group, or that Nuance's license was not sufficient to get updates developed by IBM Software Group. *See* Ricci Decl. ¶ 29; Trial Tr. at 237:12-18 (Helgi Bloom testimony); *id.* at 553:24-554:1 (Paul Ricci testimony).

76. IBM cannot contradict anything that Nuance's witnesses have testified about the negotiations of the Updates Provision or why the language of the provision was included. Kevin Reardon, IBM's corporate representative on the topic of the parties' negotiations, testified both at trial and in his deposition that he could not testify about any of the negotiations that took place between the parties.[1] Rule 30(b)(6) Deposition of Kevin Reardon ("Reardon 30(b)(6) Dep.") at 176:9-17 ("Q. But based on what you have reviewed in preparation for this deposition, you are unable to testify as to the negotiation of the definition of 'Licensed Background Software'? A. I don't recall the discussions that took place."); Trial Tr. at 382:25-383:3 (Kevin Reardon testimony)

[1] "Testimony of a Rule 30(b)(6) witness is then binding on the party that designated the witness." *A & E Prods. Grp., L.P. v. Mainetti USA Inc.*, No. 01 Civ. 10820 (RPP), 2004 WL 345841, at *6 (S.D.N.Y. Feb. 25, 2004).

("Q. You do not have any specific recollection of conversations within IBM regarding Nuance's request for updates, upgrades, and modifications, correct? A. I do not, no."); *see also* Reardon 30(b)(6) Dep. at 155:14-24, 156:17-23, 161:7-162:4, 166:24-167:6, 172:25-173:17, 175:2-21, 178:4-8, 183:6-10, 184:17-22, 190:25-191:6, 191:17-22.

77. IBM could not present any contrary evidence regarding the negotiations of the Updates Provision at trial. *See* Trial Tr. at 600:1-9 (Kenneth King testimony) (testifying that he was not involved in negotiating the updates provision and that responsibility was Kevin Reardon's); July 28 Trial Tr. at 47:17-20 (John Kelly testimony) (Q. Now, from your perspective, the lead person on the IBM side involved in negotiating the DeepQA SLA was Kevin Reardon? A. Yes.").

78. Mr. Reardon also stated that he could not testify as to why the updates language was included in the SLA. Reardon 30(b)(6) Dep. at 162:24-163:11 ("Q. In your understanding, was the underlined language here, the change, added based upon a discussion with Nuance? A. I don't know. Q. As IBM's corporate representative on the negotiation and drafting of the DeepQA SLA, you have no recollection at all regarding the addition of the language that we just discussed? A. I don't know how this – I don't know what the catalyst was for this language being added or edited.").

79. Without an updates provision that entitled Nuance to all updates made by IBM, including new components and new code, Nuance would not have entered into the SLA. *See* Ricci Decl. ¶ 29; Trial Tr. at 566:24-568:3 (Paul Ricci testimony); McCann Tr. at 129:9-131:3 (testifying that Nuance "required" updates as part of the agreement); Bloom Decl. ¶¶ 19, 21; JX005 at JX005.001 (Helgi Bloom noting, "Given the long time horizon and our inability to advance the work ourselves, I think we have to get upgrades. Otherwise, why do the deal this Q?"); Trial Tr.

at 228:2-21 (Helgi Bloom testimony) ("[W]ithout those upgrades, it wasn't a deal that I would have advocated for."); *id.* at 70:10-15 (Joseph Petro testimony) ("Nuance would not have entered into the DeepQA software license agreement but for IBM's promises that the code base would evolve and adapt. It defies logic."); PX019 at PX019.002 (Nuance's Jeanne McCann writing IBM "to ensure that the updates/upgrades/modifications language [was] sufficiently robust to include in new components or modules for the core [DeepQA] system," and noted she "read it that way" but wanted "an attorney or three to assess.").

F. IBM Made an Eleventh Hour Push for Nuance to Sign the SLA, Stressing Their Commitment To Evolving the Code for Nuance's Benefit

80. On September 29, 2010—the day before the parties signed the SLA—IBM's John Kelly and Kevin Reardon flew to Nuance's office to personally meet with Mr. Ricci and others to make a final push for the DeepQA deal. *See* Ricci Decl. ¶ 16.

81. At the eleventh-hour meeting, Dr. Kelly and Mr. Reardon were emphatic about IBM's commitment to investing in DeepQA's development and the opportunities these investments would create for Nuance. *Id.* at ¶ 17.

82. Specifically, Dr. Kelly and Mr. Reardon were unequivocal about IBM's long-term dedication of resources to the DeepQA project, its commitment to evolving the DeepQA platform over time, and Nuance's ability to access that evolving platform including updates, upgrades and modifications to DeepQA for several years. *Id.*; Trial Tr. at 454:1-12 (Paul Ricci testimony) (testifying that John Kelly visited Nuance on September 29, 2010 "to offer his commitments about the [DeepQA] technology and IBM's commitment to the technology and IBM's commitment to Nuance and the technology, and our joint aspirations together to make this a significant technology, particularly in the healthcare space.").

83. Dr. Kelly and Mr. Reardon also reiterated IBM's vision for the future of DeepQA, including DeepQA's potential application in several industries where Nuance had a sizeable business. Ricci Decl. ¶ 18. Dr. Kelly, in particular, emphasized IBM's commitment to investing in DeepQA's growth in the healthcare space, the importance of the opportunity in healthcare, and the affect DeepQA could have on the delivery of healthcare. *Id.*; PX024 at PX024.001 (contemporaneous document memorializing that Dr. Kelly "made very strong commitments concerning resource dedication and rapid focus on achieving a demonstrable product in healthcare"); Trial Tr. at 454:1-12 (Paul Ricci testimony).

84. At the meeting, Mr. Ricci stressed, and Dr. Kelly agreed, that any deal related to DeepQA would have to create a long-term relationship for both companies with access for Nuance to IBM's future work on the DeepQA platform. Ricci Decl. ¶ 19.

85. Dr. Kelly and Mr. Reardon also acknowledged that the DeepQA technology was in a state of relative immaturity compared to where it needed to be to carry out IBM's vision. *Id.* at ¶ 20. They therefore discussed with Mr. Ricci the importance of updates and upgrades so that Nuance could leverage the DeepQA technology in commercial products. *Id.* Dr. Kelly was especially enthusiastic about the benefits Nuance would realize through its receipt of those future Updates. *Id*.

86. Dr. Kelly again stressed that there would be a single, universal common core for DeepQA and that all updates, upgrades and modifications would flow into that common core and be shared with Nuance. Ricci Decl. ¶ 21; Trial Tr. at 493:16-494:12 (Paul Ricci testimony) ("Q. So it's your recollection today that during this meeting on September 29th, Dr. Kelly in conversations with you said in words or substance that there will be a single universal common

core for DeepQA and that all updates, upgrades, and modifications would flow into that common core and be shared with Nuance? A. Yes.").

G. Nuance Executed the SLA and Paid IBM $25 Million

87. IBM initially asked for $20 million for the DeepQA SLA. *See* Bloom Decl. ¶ 26. Helgi Bloom thought this amount "seem[ed] [like] a lot," but accepted that it was worthwhile to get in early on a potential set of products that could make a big difference in some of the industries in which Nuance participated. *See id.*; *see also* JX005 at JX005.001.

88. Ultimately, Nuance agreed to pay $25 million under the SLA. *See* Bloom Decl. ¶ 27; *see also* McCann Tr. at 81:1-81:3.

89. Nuance agreed to the higher price based in part on the promises, representations, and commitments IBM made to Nuance before the parties executed the SLA, including the representations made by Dr. Kelly during his eleventh-hour visit to Nuance. *See* Bloom Decl. ¶ 28; Ricci Decl. ¶ 29.

90. On September 30, 2010, Nuance and IBM executed the SLA. JX001.

91. The SLA is a valid and binding agreement. Stipulated Fact 1.

92. Nuance fulfilled its end of the bargain and made the $25 million payment to IBM. Stipulated Fact 3.

IV. Nuance Is Entitled to All DeepQA Updates

A. Updates Are Owed by IBM

93. The SLA was entered into by IBM, not IBM Research, and signed by Kevin Reardon as "Vice President, Business Development" on behalf of IBM. JX001 at JX001.1 and JX001.20.

94. DeepQA was fully funded by IBM Corporation and IBM Corporation owns DeepQA. Trial Tr. at 341:5-12 (Kevin Reardon testimony) ("Yes, I agree, IBM Corporation owns [DeepQA]."); July 28 Trial Tr. at 9:8-12 (John Kelly testimony).

95. Section 1.2 of the SLA states that "[t]he Licensed IBM Background Software is owned by IBM." JX001 at JX001.1. Section 2.1 of the SLA states that the license grant to Nuance is also by IBM. *Id.* at JX001.2.

96. The SLA as executed gave Nuance rights to the DeepQA source code as it existed at the time, and ten years of updates, upgrades, modifications, error corrections, bug fixes, and other changes ("Updates") "provided to Nuance by IBM." *See* JX001.

97. Specifically, the definition of Licensed IBM Background Software (the "Updates Provision"), reads in full:

> Licensed IBM Background Software means (a) all Software that exists as of the Effective Date in all available formats (including Source Code and Object Code) that is owned by, or that has been developed or licensed by the IBM Research Group, including Tools, and that is listed on Exhibit A, including any modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools, that are JDBC compliant, and other changes, if available ("Modifications"), and if such Modifications are not contractually prohibited under a Third Party Agreement, and such Modifications are available, will be timely provided to Nuance; and where the Modifications continue to meet the scope contemplated in Article 2.1 regarding the licensing of Deep QA under this Agreement, as of the Effective Date and thereafter for a period of ten (10) years, and additional Software as agreed by the parties, provided to Nuance ***by IBM*** under the Agreement (collectively "Updates"); and (b) all Software Materials for such Software.

Id. at JX001.253-54 (emphasis added).

98. Section 7.11 states that "all references to 'IBM' mean IBM Corporation, unless otherwise expressly limited to a division or group of IBM Corporation herein." *Id.* at JX001.19.

99. Section 2.4 states "If ***IBM*** provides [] any modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools and other changes to the Licensed IBM

Background Software, ***IBM*** will update Exhibit B to include any additions or subtractions to the Open Source Software or the Third Party Code." *Id.* at JX001.3 (emphasis added).

100. The Updates Provision is not expressly limited to a division or group of IBM Corporation. *Id.* at JX001.253. Instead, it specifically references all of IBM. *Id.*; Cox Tr. at 149:13-19 ("Q. But you agree that the modification provision in the definition of 'licensed IBM software' did not specifically state that it is limited to modifications developed by IBM Research Group? A. Correct."); McCann Tr. at 123:10-17, 124:19-125:6.

101. The use of "IBM" and not "IBM Research Group" was an intentional choice by the parties. *See* Bloom Decl. ¶ 24. Nuance insisted upon this language because, when they signed the SLA, DeepQA was a research project and the direction IBM would take the code was still unknown. *Id.* It was therefore essential that the parties define the Updates obligation as an IBM obligation because if the work on DeepQA moved elsewhere within IBM, Nuance did not want their rights to be cut off. *See id*.

102. IBM Research Group and IBM Software Group are not legal entities – rather, they are two business units within IBM Corporation. *See* Trial Tr. at 597:17-598:15 (Kenneth King testimony); *id.* at 332:17-333:12 (Kevin Reardon testimony) (testifying that IBM Research, IBM Software, and Watson Group are all "within IBM"); *id.* at 670:23-671:1, 671:19-672:2 (Eric Brown testimony); *id.* at 234:6-8 (Helgi Bloom testimony); July 28 Trial Tr. at 8:18-23 (John Kelly testimony); *id.* at 129:18-130:4 (Thomas Eggebraaten testimony). In September 2010, IBM Research reported to the CEO of IBM Corporation. July 28 Trial Tr. at 8:18-23 (John Kelly testimony).

103. Nuance's understanding of distinctions between groups within IBM, such as IBM Research Group and IBM Software Group, was that such distinctions were purely political. *See*

Trial Tr. at 163:17-164:5 (Helgi Bloom testimony) (noting that there may be a distinction between groups in IBM "in terms of the internal politics of IBM . . . [b]ut I never understood there to be a legal distinction"); *id.* at 170:21-171:8.

104. IBM Corporation's operations team approved the signing of the SLA between IBM and Nuance as written. *See* Trial Tr. at 370:3-9, 409:9-11 (Kevin Reardon testimony) ("The IBM operation team's – yes, they – they approved us licensing the DeepQA technology to Nuance.").

105. John Kelly is an officer of IBM Corporation. July 28 Trial Tr. at 8:10-17 (John Kelly testimony); Trial Tr. at 409:12-15 (Kevin Reardon testimony). In September 2010, as Senior VP and a Section 16 officer of IBM Corporation, Dr. Kelly made the decision for IBM to enter into the SLA with Nuance. July 28 Trial Tr. at 8:4-17 (John Kelly testimony). At the time, Dr. Kelly had corporate responsibility for IBM's intellectual property, and had the authority to license anyone's intellectual property in IBM Corporation. *Id.* at 8:24-9:7; *see also* Trial Tr. at 487:21-488:11 (Paul Ricci testimony) ("John Kelly, the senior officer of IBM, he spoke for IBM . . . John Kelly as a senior executive spoke for IBM.").

106. Based on the terms of the SLA, IBM and Nuance agreed that Nuance would receive updates, upgrades, modifications, and other changes to DeepQA developed throughout IBM under the SLA. *See* Ricci Decl. ¶ 28; Bloom Decl. ¶ 31; McCann Tr. at 95:8-97:7.

107. These agreed upon updates, upgrades, modifications, and other changes included updates made to JFrost, Juru and ESG, which are three components that IBM asserts IBM Software Group developed. King Decl. ¶ 9; Trial Tr. at 611:10-22 (Kenneth King testimony) ("Q. Okay. Those three files, JFrost, Juru, and ESG, you were successful and they were ultimately included in the Licensed IBM Background Software that was licensed in the SLA, right? A. Correct. Q. So, Nuance is entitled to updates to those components under the SLA, right? A. I believe so. I believe

so. There were other restrictions associated with those components but I believe they were part of the updates and upgrades."); *see also* Trial Tr. at 233:17-234:1 (Helgi Bloom testimony) (testifying that "given that [JFrost and Juru] are components of the [L]icensed IBM [B]ackground [S]oftware, then, yes, I would expect we would receive updates or upgrades"). The only restrictions on these components was Nuance's ability to sublicense them. King Decl. ¶ 9; JX001 at JX001.2.

108. IBM's expert Christian Hicks identified the ESG Parser, which IBM alleged was developed by IBM Software Group, *see* King Decl. ¶ 9, as an example of an Update that Nuance received from IBM. Hicks Rebuttal Decl. ¶ 94; DX-34 ("Enhancements: Improved the ESG Parser").

B. Updates Include New Code and New Functionality

109. Exhibit A to the SLA is a list of the code that existed as of the date of the execution of the SLA. McCann Tr. at 137:23-138:14; Sejnoha Tr. at 24:23-25:9; *see also* JX001 at JX001.21. IBM's practice is to enumerate all source code existing as of the effective date of an agreement so the clarity of the full system being delivered and its existence proof can support revenue recognition. *See* McCann Tr. at 137:23-138:14.

110. Based on the terms of the SLA, IBM and Nuance agreed that Nuance would receive updates, upgrades, modifications, and other changes to DeepQA even if those Updates included new code or new functionality not listed in Exhibit A. *See* Sejnoha Tr. at 24:23-27:15, 28:5-18, 31:4-9, 36:10-37:5, 37:18-38:17 ("My understanding at the time – at this time was that Nuance had licensed anything that would be necessary to evolve the system to a fully functional state. IBM freely acknowledged in the meetings before this was signed, that this was an early system, would have to grow significantly over time, that they were committing to do that for us. In my view that might very well involve the additional files to this list in future updates."); Trial Tr. at 687:22-687:24 (Eric Brown testimony) (discussing that a "module" could be the "new implementation of

a particular function"); Declaration of Eric Brown, Aug. 14, 2019 ("Brown Decl.") ¶ 9 (testifying that Nuance would be entitled to "any new code written to replace or supplement any of those source code files in order to improve the performance of the licensed version of DeepQA"); Trial Tr. at 78:15-25 (Joseph Petro testimony) ("Improved means that the DeepQA functionality has been materially advanced, so that's an improvement. That could be new functionality, it could be an adaptation of old functionality, it could be a completely different approach. . . . It could be thousands of lines of code introduced. That's an improvement.").

111. The functionality of DeepQA, as it was originally contemplated, was for DeepQA to be a question and answer technology. Trial Tr. at 680:19-22 (Eric Brown testimony). At the time the SLA was signed, DeepQA represented a pipeline of processing steps and various capabilities and functions. *Id.* at 680:23-681:1. The pipeline started with a natural language question and then the question is analyzed to understand the question. *Id.* at 681:2-7. Next, potential candidate answers are generated. *Id.* at 681:8-9. After that, there are a series of processing steps, or analytics, that evaluate the candidate answers, and then the individual candidate answers are scored based on those analytics and ranked with a confidence measure. *Id.* at 681:10-17. Ultimately, a final list of ranked answers is generated and, in the instance of the Jeopardy! application, the top answer would be returned. *Id.* at 681:18-682:1.

112. IBM understood and agreed that Updates would include new code functionality, as well as improvements or upgrades to the existing DeepQA functionality. Trial Tr. at 682:3-11 (Eric Brown testimony) (testifying that his understanding of the Updates Provision in the SLA is that Nuance was entitled to any files, including a whole new file or set of files, that better performed the functions that were originally contemplated in the DeepQA system); Bloom Decl. ¶ 32 ("IBM appeared to share our understanding of their broad obligations under the update provision of the

SLA and that it was not limited to the specific files set forth in Exhibit A."); PX032 at PX032.003 (IBM describing the SLA Update provision as including "any derivative works and improvement (licensed under the SLA) thereof" and "including any new functionality that enhances [DeepQA]"); PX020 at PX020.001 (Nuance's Jeanne McCann discussing with IBM's Mark Overman that Nuance wanted to "ensure that the updates/upgrades/modifications language [was] sufficiently robust to include in new components or modules for the core [DeepQA] system," and that she "read it that way" but wanted "an attorney or three to assess" and IBM's Mark Overman agreeing "Yes ... we'll need a few attorneys."); Sejnoha Tr. at 31:4-9 (testifying that the intent of the agreement was "to license what's necessary to build and evolve an open-ended question/answering system"); Schnell Decl. ¶ 22 (discussing the IBM Licensed Background Software and testifying "[t]hese definitions could include both changes to existing code or the addition of new code."); *id.* at ¶ 116.

113. Limiting Updates to a software project to those that update a specific set of existing files is not technically sound, as it would greatly hinder a programmer's ability to make Updates to the software. *See* Schnell Decl. ¶¶ 156, 160. The term "updates" has a significantly broader definition in the software development industry and includes new code and new files that would improve the functionality licensed. *See id.* at ¶¶ 22, 156, 160.[2] It is, in fact, standard industry practice to add files while updating software. *Id*. at ¶¶ 156, 160.

114. Limiting Updates to only "existing source code" would defy even a common sense understanding of source code development, as it would be impossible to run a software project

[2] IBM's expert opines that Updates are limited to existing code, *see* Rebuttal Declaration of Christian Hicks ¶ 9, however, Mr. Hicks has only minimal experience writing source code, July 30 Trial Tr. at 139:14-24, as compared to Nuance's expert, Ron Schnell, who has over forty (40) years of experience writing source code. Schnell Decl. ¶¶ 1-2, 6-9.

without the addition of software code that previously did not exist. *See* Schnell Decl. ¶ 160. Best coding practice is to make code as "modular" as possible, therefore, software developers add files as they add functionality. *See id*. IBM programmers followed this best practice and created modular code, which necessitated the addition of files for Updates outside of Exhibit A. *See id*.

115. Moreover, IBM's initial delivery of DeepQA to Nuance in September 2010 included many files that were not listed in Exhibit A, and IBM continued to deliver files not in Exhibit A after the initial delivery. Schnell Decl. ¶ 156; July 30 Trial Tr. at 155:10-17 (Christian Hicks testimony).

116. The language in the definition of "Licensed IBM Background Software" providing Updates "if available" does not restrict or limit IBM's obligation to continue updating DeepQA or to deliver those Updates to Nuance. *See* Bloom Decl. ¶ 31. This is standard language in IBM license agreements as dictated by their accounting team. *Id.* It allows IBM to recognize all of the license fee (in this case, $25 million) up-front rather than needing to spread it out over the 10-year life of the contract. *Id.*

V. After the *Jeopardy!* Competition, IBM Undertook Elaborate Efforts in Bad Faith to Keep DeepQA Updates From Nuance

A. IBM Forked the DeepQA Code and Provided a Copy to Its Software Group

117. At the time the SLA was executed, the IBM Research Group exclusively managed and developed the DeepQA source code. *See* Bloom Decl. ¶ 24; Trial Tr. at 378:13-379:2 (Kevin Reardon testimony); *id.* at 671:12-15 (Eric Brown testimony); PX011 at PX011.046; July 28 Trial Tr. at 9:13-24 (John Kelly testimony).

118. At the time of the SLA execution, the DeepQA source code also was tuned only to play *Jeopardy!*, and was not commercially viable. Trial Tr. at 258:8-259:1 (David McQueeney testimony) (testifying that, at the time of the *Jeopardy!* episode, "there was quite a lot of

development that would remain before [DeepQA] could be a commercial product" and that in order to make DeepQA suitable for other business applications, changes needed to be made to the DeepQA code base); *id.* at 359:3-11 (Kevin Reardon testimony) ("Q. And since DeepQA was created specifically for *Jeopardy!*, you would agree with me that DeepQA would need to be modified, at least to some degree, in order to apply it to things like healthcare or tech support and the other things that are listed on this document, right? A. The technology that made DeepQA possible, yes, would have to be modified or it would have to be reconfigured or things would have to be added to it to be able to use it in these areas."); *id.* at 87:24-88:13 (Joseph Petro testimony) ("[DeepQA] was spaghetti code because it was written by [IBM Research Group]. It wasn't highly productized. It was brutal."); *id.* at 226:23-227:10 (Helgi Bloom testimony) ("This was a body of research code, at that – as of September of 2010. It wasn't close to being commercializable."); July 28 Trial Tr. at 99:2-9 (Rob High testimony) ("Q. The DeepQA as it existed at the time of the Jeopardy challenge, that would not have been useful in a business application, correct? A. We found no use for it. That's right."); *Id.* at 137:13-138:1 (Thomas Eggebraaten); July 30 Trial Tr. at 165:14-17 (Christian Hicks testimony) ("Q. You understand that the code, as it existed as of September 2010, could only play Jeopardy, right? A. Yes, or provide services to some other code that calls into it, yes.").

119. Specifically, the DeepQA code base prior to the airing of *Jeopardy!* "barely functioned" and "required its 20 Ph.D. mothers to be coddling it as it was used, and that obviously is not acceptable for a hardened piece of product code that a customer might rely on to run their business." Trial Tr. at 261:20-262:9 (David McQueeney testimony). The DeepQA code base was just meant to establish that "something was just barely possible. It didn't matter how reliable it

was. It didn't matter how scalable it was. It didn't matter how much compu[te] power it used." *Id.* at 263:1-264:2.

120. IBM admitted that a lot of work needed to be done on the IBM Research version of DeepQA prior to it being suited for release in commercial products, including the need to add many functions that were not present in the code that played on *Jeopardy!*. Trial Tr. at 261:14-19 (David McQueeney testimony); *id.* at 363:8-16 (Kevin Reardon testimony) (testifying that "the things . . . that we might apply [DeepQA] to that were not the *Jeopardy!* game were going to require additional things to be added to the technology or changes to be made to it."); July 28 Trial Tr. at 98:10-13 (Rob High testimony).

121. After the DeepQA-based Watson supercomputer won *Jeopardy!* in February 2011, IBM believed that DeepQA was a "breakthrough technology" and immediately turned its attention to commercializing it. *See* Stipulated Fact 2; Deposition of Mike Rhodin ("Rhodin Tr.") at 52:17-53:5; Trial Tr. at 259:9-14 (David McQueeney testimony) (testifying that all of the commercialization work on DeepQA was performed after the February 2011 airing of *Jeopardy!*).

122. To that end, IBM established a "Watson Commercialization Committee" to decide where within IBM the technology would reside. *See* Rhodin Tr.at 53:9-54:11.

123. Although several different groups within IBM made pitches for the technology, IBM chose the IBM Software Group to commercialize DeepQA. *See* Rhodin Tr. at 60:5-61:23; Brown Decl. ¶ 19 ("In 2011, IBM implemented a plan to commercialize DeepQA, selecting the IBM Software Group ("SWG") to handle that effort. After that decision was made, SWG was given a copy of the DeepQA source code so that it could begin the commercialization effort.").

124. IBM forked the DeepQA code in mid-2011 and delivered a full copy of the DeepQA source code to the Emerging Technologies Group within IBM Software Group.

Deposition of Eric Brown ("Brown 30(b)(6) Dep.") at 94:17-96:4; Brown Decl. ¶ 19; Trial Tr. at 692:24-693:8 (Eric Brown testimony); *id.* at 270:22-24 (David McQueeney testimony); Deposition of David Boloker ("Boloker Tr.") at 73:9-74:4, 77:3-16, 79:21-80:11, 89:2-90:5; July 28 Trial Tr. at 99:17-23 (Rob High testimony); *id.* at 138:23-25 (Thomas Eggebraaten testimony).

125. IBM intended for IBM Software Group to build on the legacy that had been created by the original IBM Research Group code. July 28 Trial Tr. at 103:12-104:13 (Rob High testimony).

126. IBM's "forking" meant that, rather than there being a single core code base, there were multiple copies of the DeepQA code base being worked on by different groups. Trial Tr. at 694:15-18 (Eric Brown testimony). IBM Research had a version of the DeepQA code and there was also an IBM Software Group version of the DeepQA code. *Id.* at 693:15-20 (Eric Brown testimony).

127. IBM Research Group was left with its preexisting DeepQA code, but was not given access to the IBM Software Group "fork." Boloker Tr. at 79:21-80:11.

128. After the fork, IBM Research Group invested little to no resources into their version of the DeepQA code. Boloker Tr. at 53:2-6; July 28 Trial Tr. at 70:11-71:12 (John Kelly testimony); Schnell Decl. ¶ 37.

129. However, IBM invested heavily in IBM Software Group's version of the code. *See* Rhodin Tr. at 66:3-10 (Rhodin proposed spending "tens of millions" of dollars on the DeepQA asset in IBM Software Group). The development work by IBM Software Group involved investing substantial amounts of money well beyond what the IBM Research Group had previously invested in DeepQA. Trial Tr. at 259:15-19 (David McQueeney testimony); July 28 Trial Tr. at 104:20-105:16 (Rob High testimony) (testifying that IBM Software Group substantially modified and

"rewrote a lot of" its copy of DeepQA in order to make it useful for business applications); *see also* Schnell Decl. ¶¶ 44-53; Boloker Tr. at 61:2-16 ("Q. Could DeepQA have been commercialized without making these changes? A. No."); Rhodin Tr. at 25:11-26:13 (indicating that "[w]henever we take code from IBM Research, or from an acquisition, we go through the code to make sure that it is commercially usable, a phrase known as "blue-washing."); Trial Tr. at 346:9-12 (Kevin Reardon testimony) (testifying that the Watson Group leveraged IBM Research Group's work on DeepQA); *id.* at 696:7-11 (Eric Brown testimony); July 28 Trial Tr. at 138:6-18 (Thomas Eggebraaten testimony).

130. IBM Software Group then put its "fork" of the DeepQA code through a process known as "blue-washing," which involved cleansing the code, fixing bugs, removing unnecessary code, and refining it so it could be made ready for production use. July 28 Trial Tr. at 99:21-23, 100:6-15 (Rob High testimony).

131. IBM originally intended IBM Software Group's blue-washed version of the DeepQA code to be the core of all the product offerings that IBM was going to create in the Watson Division. July 28 Trial Tr. at 101:10-102:18 (Rob High testimony).

132. None of the work that the Emerging Technologies Group within IBM Software Group performed on the DeepQA code base to turn it into a commercial product was domain specific. Boloker Tr. at 141:5-8; *see also* Trial Tr. at 697:4-6 (Eric Brown testimony).

133. The improvements that IBM Software Group made to DeepQA included making it commercially viable, smaller, faster, more efficient, improving its accuracy and precision, and creating a "Topic-Oriented Answers" pipeline. Schnell Decl. ¶ 55; Rhodin Tr. at 36:6-22, 38:20-25 (the "Topic-Oriented Answers" modification to the pipeline was used to develop Watson Engagement Advisor), 96:21-97:6, 177:13-178:12. This work by IBM Software Group and later

the IBM Watson Group included making DeepQA easy to maintain, install and making it more reliable. Trial Tr. at 264:3-13 (David McQueeney testimony).

134. IBM Software Group also made hard-coding changes, removed lines of dead code, added in APIs, built new user interfaces, and built a workbench for companies to use to build and annotate corpora. *See* Boloker Tr. at 55:12-60:25, 129:16-131:12. The hard-coding changes provided "much greater flexibility," and constituted an improvement to the version of DeepQA that IBM Software Group received. *Id.* at 58:15-59:9. DeepQA could not have been commercialized without those changes. *Id.* at 60:8-61:12, 129:16-131:12.

135. Furthermore, IBM Software Group built "tooling" for DeepQA, which was a "major," "beneficial change" that made DeepQA "a lot less fragile" and allowed for easier annotations, because humans were no longer needed to physically make the annotations. Boloker Tr. at 67:8-69:18.

136. IBM Software Group also made changes to how customers "called the DeepQA system" to make it more "cookie cutter" so that you "wouldn't have one system for one customer, another system for another customer." Boloker Tr. at 70:17-72:25.

137. IBM Software Group's work also included "bug fixes" that involved "major rewrites of code" that were beneficial changes to the underlying code base. Boloker Tr. at 84:5-10, 84:14-21. This "reengineering and rearchitecting" of the code base was done to make the code into a commercial product. *Id.* at 84:22-85:16.

138. Ultimately, IBM Software Group created products and APIs, including ones in the Watson suite, from IBM Software Group's version of the DeepQA code base. Trial Tr. at 694:4-10 (Eric Brown testimony) (admitting that IBM Software Group started with DeepQA instead of designing a whole new question-and-answer technology); *id.* at 347:5-7 (Kevin Reardon

testimony) (testifying that after IBM won *Jeopardy!*, some of the technology was incorporated into what is now called Watson); Deposition of Bing Xiang ("Xiang Tr.") at 103:12-17 (admitting that "Watson Core" is a "branch from the original based on DeepQA"); Morello Tr. at 31:8-14 (describing his review of DeepQA within "whatever remnants of it was left in Watson Discovery Advisory and Watson Engagement Advisor").

139. Other than certain limited productization improvements, IBM withheld virtually all of the improvements made by IBM Software Group and the Watson group from Nuance, including the blue-washed code. *See* McCann Tr. at 196:12-19; Trial Tr. at 131:5-12 (Joseph Petro testimony) (testifying that IBM provided "minimal" productization updates to Nuance); *id.* at 347:12-18 (Kevin Reardon testimony); *id.* at 695:23-696:5 (Eric Brown testimony); July 28 Trial Tr. at 104:14-16 (Rob High testimony) (testifying that IBM never gave the blue-washed version of DeepQA to Nuance); *see also* Schnell Decl. ¶¶ 51, 57.

140. There is no sound reason as a matter of efficient code development to fork the DeepQA code in the manner IBM did. Schnell Decl. ¶ 42; *see also* Trial Tr. at 707:19-21 (Eric Brown testimony) ("Q. It's better to have a single common core than multiple cores, right? A. Ideally, yes."). The standard software code development practice is to have a common code base with all improvements flowing into that common code base. Schnell Decl. ¶ 42; *see also* July 30 Trial Tr. at 158:6-9 (Christian Hicks testimony) (agreeing that, from a computer science standpoint, it is preferable to maintain a single code base). Indeed, IBM's John Kelly testified that he could not recall a single other instance besides DeepQA where IBM copied code so that a different group within IBM could work on it separate from the original code base. *See* July 28 Trial Tr. at 50:13-51:16 (John Kelly testimony). When IBM develops its own code, IBM's standard

and much more commonly used procedure is to have a single code set and have whatever improvements are being made flow into that code set. *Id.* at 52:2-17.

141. IBM's 30(b)(6) corporate witness on IBM's forking of the code, Eric Brown, confirmed on behalf of IBM that IBM never informed Nuance that the code had been split and that IBM would not provide Nuance with the work on DeepQA done by Software Group or IBM Watson Group. Brown 30(b)(6) Dep. at 208:21-209:4 ("Q. And just, again, are you aware of anyone from IBM informing Nuance that the code had been split, and that Software Group was going to be developing DeepQA, but that those – that IP would not be provided to Nuance? A. Not to my knowledge."); Trial Tr. at 697:7-12 (Eric Brown testimony) ("Q. Now, Mr. Brown, you didn't tell anyone at Nuance that IBM forked the DeepQA code, correct? A. Not that I recall. Q. And you're not aware of anyone from IBM telling Nuance that the code was forked, correct? A. Correct."); *id.* at 700:10-15 ("Q. And to be clear, you are not aware of anyone from IBM informing Nuance that the code had been split and that Software Group was going to be developing DeepQA, but that IP would not be provided to Nuance, correct? A. I -- that I am not aware of anybody informing Nuance of that, yes, that's correct."); *see also* Trial Tr. at 628:19-629:7 (Kenneth King testimony).

142. Nuance was not aware that IBM had forked the code in order to withhold DeepQA Updates from Nuance. Trial Tr. at 554:2-11 (Paul Ricci testimony) ("Q. Did anyone from IBM ever tell you that they were planning to copy the DeepQA code that they had licensed to you, give that code to another group within IBM so that they could upgrade and update it, and then not provide those updates to you? A. No. And in fact, that's a contradiction of the very essence of the project, which was to have one unified integrated core that was going to evolve quickly over time through the evolution that was caused by the applications placing demands on it.").

B. IBM Set Up A "Firewall" Between IBM Research Group and the Rest of IBM

143. IBM also implemented a firewall in order to keep its upgrades and improvements out of Nuance's hands. Trial Tr. at 271:3-6 (David McQueeney testimony); Brown Decl. ¶ 20 ("Shortly after SWG began work on DeepQA, SWG erected a firewall between itself and IBM Research with respect to DeepQA out of a concern that if SWG allowed IBM Research access to its work on DeepQA, that work might find its way into IBM Research's version of DeepQA and, therefore, constitute a Modification owed to Nuance."); *see also* Schnell Decl. ¶ 35.

144. Once IBM Software Group had its copy of the DeepQA code, IBM took a unilateral view of the SLA that Nuance was entitled to Updates only from IBM Research Group, not IBM more broadly, then went to great lengths to "firewall" off Software Group employees working on DeepQA from IBM Research Group. *See* Trial Tr. at 701:18-702:22 (Eric Brown testimony) (testifying that "the firewall allowed everything that the Research Group did to flow outside to other groups within IBM, but anything that groups did outside of Research related to DeepQA did not flow back into the Research DeepQA"); *id.* at 271:12-16 (David McQueeney testimony) (admitting that because of the terms of the SLA, IBM made a "deliberate choice" to not have the Research Group assist the Software Group team in the development of products that stemmed from DeepQA); *see also* Deposition of Murthy Devarakonda ("Devarakonda Tr.") at 57:18-58:5 (noting that while working on the Nuance-IBM JDA project he had no contact at all with IBM Software Group); Schnell Decl. ¶¶ 37-38.

145. IBM admits it erected the firewall to prevent the work performed on DeepQA by IBM employees (including transferred IBM Research employees to Software Group) outside of the IBM Research Group from being transferred to Nuance under the SLA. *See* PX079 at PX079.001-02 ("We have erected a wall in SWG to prevent the flow of any information about the SWG implementation of IBM Watson to IBM Research. This is for legal and IP reasons having to

do with contracts in place with the external company Nuance. . . . The Nuance contract is a huge problem for all of us . . . ."); Boloker Tr. at 255:3-16 ("If we worked with Research or they worked with us, that code should go back to Nuance."); July 28 Trial Tr. at 59:10-61:12, 74:8-13 (John Kelly testimony) ("Q. And the wall was specifically put up to prevent the flow of updates to Nuance, right? A. Flow from the Software Group investments into Research. Q. And then onward to Nuance, right? A. Correct."); Declaration of David McQueeney, Aug. 14, 2019 ("McQueeney Decl.") ¶ 10 ("The reason for the firewall was to avoid giving Nuance a basis to claim that code developed by SWG as part of its commercialization of DeepQA fell within the scope of the license granted to Nuance in the SLA."); Trial Tr. at 273:16-21 (David McQueeney testimony) (admitting that the point of the firewall was to keep the work that IBM Software Group was doing on DeepQA away from Nuance); JX024 at JX024.001 ("[W]e must avoid [the IBM Research Group] giving us input on implementation details because changes Research makes to the SLA code base may be subject to the contract . . . ."); Rhodin Tr. at 91:24-92:13 (testifying that the purpose of the firewall was to prevent the commercial team's work from going to Nuance under the SLA); PX041 at PX041.002 ("I think that one of the unintended consequences of the [SLA] is jeopardizing our Watson Healthcare efforts."); Trial Tr. at 704:14-705:17 (Eric Brown testimony); *see also* Schnell Decl. ¶¶ 41, 43 ("My opinion is that this 'forking' was therefore likely done to deprive Nuance of the SWG Updates and not for any purpose related to further code development.").

146. IBM also admitted it "never implemented the idea of a common code base because it didn't want to share the work with Nuance." Trial Tr. at 723:22-724:5 (Eric Brown testimony).

147. Further, while the initial plan was for IBM Research to be involved with the commercialization of DeepQA, after IBM enacted the firewall, that involvement ceased because IBM was concerned that if IBM Research Group employees worked on IBM Software Group's

version of DeepQA, those developments would also need to be shared with Nuance under the SLA. Trial Tr. at 709:12-711:21, 712:21-713:11 (Eric Brown testimony); PX040 (discussing original intent of IBM Research being involved in commercializing DeepQA code); *see also* PX041 at PX041.003 ("It seems silly to move people out of Research just because of the contract. Or worse, not work together to make the DeepQA technology better.").

148. The firewall, however, was only one-sided. Though the IBM Research Group employees would not receive IBM Software Group's work, IBM Software Group had access to the IBM Research Group code and could freely receive and utilize the IBM Research Group's DeepQA Updates and enhancements. PX148, IBM's Resp. to Nuance's Interrogatory No. 14 ("IBM Research Group employees did not have access to work product of other IBM divisions on IBM's source code control system. Further, the managers of the IBM Research Group and the IBM Software Group were instructed that any work product of the IBM Software Group relating to DeepQA was not to be shared with the IBM Research Group without managerial approval."); JX020 at JX020.006 (reflecting that IBM "Forked Research code" and will "[p]eriodically cherry-pick changes from Research stream"); Rhodin Tr. at 71:14-72:9 (stating that the IBM Software Group "had access to the Research DeepQA Code, but the Research Group did not have access to the Software DeepQA Code"); Boloker Tr. at 73:21-74:4 (stating that while IBM Software Group had "access to what the Research Group was doing with the original code base" the IBM Research Group "never" had access to what IBM Software Group was doing with the commercial code base); Trial Tr. at 280:19-22 (David McQueeney testimony) (admitting that "Software Group had access to IBM Research work on DeepQA, but IBM Research did not have access to Software Group's work on DeepQA"); July 28 Trial Tr. at 132:24-134:10, 135:18-136:20 (Thomas Eggebraaten testimony) (noting that, immediately after the *Jeopardy!* match, Mr. Eggebraaten and

a team of IBM Software employees were given access to the Research DeepQA source code to "investigat[e] the Research code to understand it and determine if it could be applied to other domains," including healthcare).

149. IBM Software Group also benefitted from IBM Research Group's expertise, as Research Group trained Software Group personnel on the inner workings of DeepQA, spending a significant amount of time conducting tutorials for IBM Software Group personnel. Trial Tr. at 713:12-22, 727:3-7 (Eric Brown testimony); PX082 at PX082.004 ("Technology Transfer: Transfer Watson Development and Adaptation Skills to SWG and GBS through developing and documenting an in-depth, hands-on training course and associated materials."); July 28 Trial Tr. at 134:11-135:17 (Thomas Eggebraaten testimony) (describing how the IBM Research Group trained IBM Software Group on DeepQA).

150. IBM even initiated a program to "embed" IBM Software Group engineers in the IBM Research Group, so IBM Software Group could benefit from the IBM Research Group's work on and experience with DeepQA. *See* PX081 at PX081.001; Trial Tr. at 728:17-21 (Eric Brown Testimony) (testifying that "in addition to spending time teaching Software Group personnel about DeepQA, [he] also had Software Group personnel actually get embedded within the Research Group to learn more about DeepQA").

151. The firewall was unusual at IBM because it was normal for members of IBM's Research Group to work very closely with their Software Group partners as they transfer new technology, such as DeepQA. Trial Tr. at 271:21-25 (David McQueeney testimony); *id.* at 705:23-706:22 (Eric Brown testimony). IBM's normal practice is that when IBM Research develops a system, and that system is then commercialized by Software Group, IBM Research would be involved in any future updates to the system as it is developed. *Id.* at 272:1-5 (David McQueeney

testimony). Despite this normal practice, a firewall was implemented between IBM Research Group and IBM Software Group for DeepQA. *Id.* at 272:6-9.

152. David McQueeney, IBM's Chief Information Officer, admitted that this was the "only time [he] had ever seen" a firewall between IBM Research Group and IBM Software Group in his thirty years at IBM. Trial Tr. at 272:10-14 (David McQueeney testimony).

153. IBM's employees were unhappy with the firewall as it deviated from the intended "common core" of DeepQA. *See, e.g.*, PX080 at PX080.002 ("I am not too happy of the separation between Research and SWG."); Trial Tr. at 718:19-720:8 (Eric Brown testimony). They were also concerned that the firewall would cause different groups within IBM to perform redundant work. *See* PX057 at PX057.003.

154. IBM Research Group employees wanted to collaborate with IBM Software Group on DeepQA, through a single integrated code base, despite what IBM deemed the "business risk" of IBM Software Group's work on DeepQA going to Nuance. *See* PX057; PX061 at PX061.002; PX091 at PX091.001 ("What we need is a common code base where all source code is freely shared in both directions. . . . If and when this full sharing occurs, one important issue we need to address is the mechanism for deciding what, if any, SWG code would have to flow to our Research partner as a result of the SLA."); Trial Tr. at 721:25-722:19 (Eric Brown testimony).

155. IBM employees thought that the firewall was "highly unusual and highly unproductive" as well as "inefficient." McQueeney Decl. ¶ 11; Trial Tr. at 272:15-18, 281:9-24 (David McQueeney testimony); *Id.* at 706:16-22, 707:5-21 (Eric Brown testimony); *see also* July 30 Trial Tr. at 163:15-22 (Christian Hicks testimony) (agreeing that firewall was detrimental to code development).

156. David Ferrucci, who led IBM's Watson team from its inception to the *Jeopardy!* challenge, advocated for removing the firewall. *See* PX051 at PX051.002 ("The research team is being measured, at least in large part, by SWG's success while, due to contractual issues with Nuance, is restricted from working openly with SWG. This challenge alone is demoralizing, if not paralyzing. . . . The impulse to fragment and distribute the research team independently of the challenges related to Nuance is at the heart of the real dilemma."); Trial Tr. at 282:17-25 (David McQueeney) (testifying that Dr. Ferrucci told him he found the restrictions on the IBM Research Group collaborating with the IBM Software Group "demoralizing, if not paralyzing" and that he thought the firewall was making it more difficult for IBM to take advantage of the technology that IBM Research developed).

157. However, Rob High, the Chief Technology Officer of IBM's Watson Solutions group rejected Ferrucci's proposal, and instead recommended that his office be used as a "Chinese firewall" between the IBM Software Group assets and the IBM Research Group, to "protect SWG IP from flowing to Research Partners in an uncontrolled and unintended manner." *See* JX021 at JX021.009.

158. IBM's John Kelly briefly considered whether to let IBM Software Group and IBM Research talk more openly about DeepQA, but he first wanted to understand how IBM Software Group was doing on advancing the precision of DeepQA. *See* JX021 at JX021.005; July 28 Trial Tr. at 76:3-78:21 (John Kelly testimony). If IBM Software Group had made "tremendous progress," he did not want to let their work "leak through" to IBM Research. July 28 Trial Tr. at 76:3-78:21 (John Kelly testimony). However, if IBM Software Group had only made minimal progress on DeepQA, then that would have been a "business risk" he would take. *Id.*

C. IBM Transferred Research Engineers to Work on DeepQA Outside of IBM Research

159. IBM also transferred its researchers out of IBM Research so they could work on improving DeepQA in the IBM Software Group and later, the IBM Watson Group. For example, Eric Brown, one of the key IBM Research Group developers involved with creating the DeepQA code, was transferred out of the IBM Research Group and into the Watson Division and then the IBM Watson Group in order to accelerate the work on DeepQA. Trial Tr. at 738:6-10 (Eric Brown testimony); July 28 Trial Tr. at 14:11-16, 16:5-17:2 (John Kelly testimony) (testifying that Eric Brown was transferred to the IBM Software Group because he was the "ideal person" to accelerate IBM's work on DeepQA); *Id.* at 96:4-13 (Rob High testimony); *see also* Deposition of Peter Stubley ("Stubley Tr.") at 166:11-167:1 ("Eric Brown . . . [and] a few other people that we interacted with . . . those people are just excellent; they are really smart people. I wish I had more chance to interact with them."); *see also* PX041 at PX041.003 ("It seems silly to move people out of Research just because of the contract. Or worse, not work together to make the DeepQA technology better.").

160. IBM admitted it moved Eric Brown out of IBM Research Group because he had the expertise to go over and help commercialize DeepQA. *See* July 28 Trial Tr. at 14:17-15:13 (John Kelly testimony); *see also* Rhodin Tr. at 20:14-21:14, 24:8-25:10 (admitting the purpose of creating Watson Group was to commercialize artificial intelligence software, including DeepQA) 140:3-9 (admitting that IBM moved IBM Research Group employees from the DeepQA team to the Watson Group, where they subsequently worked on the commercial DeepQA code base).

161. IBM transferred other IBM Research personnel involved with DeepQA outside of IBM Research as well, including Bill Murdock, who later worked on Watson products such as

Watson Engagement Advisor, Retrieve and Rank and Watson Discovery Service. *See* PX140; Rhodin Tr. at 20:9-21:14; Trial Tr. at 732:5-734:8, 737:11-18 (Eric Brown testimony).

162. In fact, more than 125 IBM Research Group employees joined the Watson Group, including "individuals from the Core *Jeopardy!* Team, the DeepQA Team." Rhodin Tr. at 20:9-21:14; Trial Tr. at 729:25-730:10 (Eric Brown testimony) (testifying that in 2014, when the Watson Group was formed, "about 130 people from Research were moved into Watson Group, including myself and all of the people that reported to me, which included all the people that built DeepQA"); July 28 Trial Tr. at 95:22-24 (Rob High testimony).

163. Even in instances where employees from IBM Research were transferred to IBM Software Group and then worked on a project or product that used DeepQA, those modifications or the intellectual property that resulted from them were not transferred to Nuance. *See* Trial Tr. at 731:6-13 (Eric Brown testimony). The only work that was provided back to Nuance once these employees were transferred was the limited Updates, as determined by IBM, that these transferred employees made to the IBM Research version of the DeepQA code. Trial Tr. at 776:9-17 (Eric Brown testimony);

164. IBM's firewall proved incredibly effective, as it has not provided Nuance with virtually any modifications, updates, upgrades, error corrections, bug fixes, or other changes originating from groups outside of IBM Research Group, including IBM Software Group or IBM Watson Group. *See* July 28 Trial Tr. at 104:14-16, 109:21-110:2, 112:4-9, 121:16-22, 125:3-11 (Rob High testimony); Rhodin Tr. at 176:16-178:21; Trial Tr. at 426:9-11 (William LaFontaine testimony) ("Q. And IBM never provided the software group version of Watson to Nuance, correct? A. As far as I'm aware."); Trial Tr. at 703:23-704:5 (Eric Brown testimony) ("Anything

that Software Group developed was kept out of the Research version of DeepQA"); July 28 Trial Tr. at 70:11-71:12, 79:24-80:22 (John Kelly testimony).

165. As a result of IBM's forking of the DeepQA code and implementation of a firewall between IBM Research Group and IBM Software Group, there ceased to be a common core DeepQA code. Trial Tr. at 723:22-724:5 (Eric Brown testimony) ("Q. IBM never implemented this idea of a common code base because it didn't want to share the work with Nuance, right? A. I believe that was a factor in that decision.").

166. No one at IBM ever told anyone at Nuance that IBM had erected a firewall to prevent Updates to DeepQA from going to Nuance. Trial Tr. at 558:5-10, 559:11-20 (Paul Ricci testimony); *see also id.* at 706:23-707:4 (Eric Brown testimony).

D. IBM Proposed an "Amendment" to the Software License Agreement

167. On August 15, 2011, almost a year after the parties executed the SLA, IBM sent Nuance a proposed redline of the "Licensed IBM Background Software" definition with IBM's "requested adjustments" to the definition (the "IBM Proposed Amendment."). Stipulated Fact 4; McCann Tr. at 150:11-18; JX017 at JX017.001.

168. The IBM Proposed Amendment attempted to dramatically limit the Updates IBM was obligated to deliver under the SLA to only those Updates developed by IBM Research Group. McCann Tr. at 151:8-21; JX017 at JX017.002; Trial Tr. at 617:10-13 (Kenneth King testimony).

169. Specifically, the IBM Proposed Amendment sought to replace the definition of "Licensed IBM Background Software" with the following:

> 'Licensed IBM Background Software' means (a) all Software that exists as of the Effective Date in all available formats (including Source Code and Object Code) that is owned by, or that has been developed or licensed by the IBM Research Group, including Tools, and that is listed on Exhibit A, ~~including~~ as well as any modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools, that are JDBC compliant, and other changes to the IBM Licensed Background Software, if available ("Modifications"), that are written by one or

> more IBM Research Group employees or acquired under a contract entered into by IBM Research Group, and if such Modifications are not contractually prohibited under a Third Party agreement, and such Modifications are available, will be timely provided to Nuance; and where the Modifications continue to meet the scope contemplated in Article 2.1 regarding the licensing of Deep QA under this Agreement, as of the Effective Date and thereafter for a period of ten (10) years, and additional Software as agreed by the parties, provided to Nuance by IBM under the Agreement (collectively "Updates"); and (b) all Software Materials for such Software. For clarity, as of the Effective Date the "Licensed IBM Background Software" excludes the Third Party Code listed in Exhibit B.
>
> For avoidance of doubt, Software (including modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools) written by IBM employees that are not IBM Research Group employees shall not be considered 'Licensed IBM Background Software' even if such non-IBM Research Group employees consult with IBM Research Group employees in the course of their work on such Software. A 'contract entered into by IBM Research Group' means a contract with a Third Party signed or authorized by IBM Research Group management to obtain code on behalf of IBM Research Group.

See JX017 at JX017.002; *see also* McCann Tr. at 151:8-21.

170. The IBM Proposed Amendment also sought to add the following definition of "IBM Research Group":

> "IBM Research Group" means the portion of IBM's business that receives functional direction from the IBM Director of Research, currently John E Kelly, III, consisting of those IBM employees funded through the IBM Director of Research. IBM Research Group shall not include those portions of IBM's business receiving functional direction from other groups or units of the IBM Corporation, such as the IBM Software Group, IBM Global Services, or IBM Systems & Technology Group.

See JX017 at JX017.002.

171. The IBM Proposed Amendment would expressly limit modifications, updates and upgrades to ones created by the IBM Research Group or acquired under a contract entered into by IBM Research Group. Trial Tr. at 286:21-287:1 (David McQueeney testimony); JX017; July 28 Trial Tr. at 62:19-63:23 (John Kelly testimony).

172. IBM's Chief Information Officer, David McQueeney, admitted that in his 30 years at IBM he was not aware of any other instances where IBM has reached out to a counterparty for

clarification on contractual issues that IBM thought were crystal clear. Trial Tr. at 287:10-15 (David McQueeney testimony).

173. IBM's John Kelly admitted that Nuance would not have benefitted in any way from signing the IBM Proposed Amendment. *See* July 28 Trial Tr. at 64:12-65:12 (John Kelly testimony).

174. IBM, through its executives Mike Rhodin and Kenneth King, indicated internally within IBM that if Nuance did not accept the IBM Proposed Amendment, IBM would "shut down watson research to bare minimum, exit the JDA [Joint Development Agreement] and focus the research on areas that would not further any commercialization by Nuance of our technology, and do all future work in SWG out of reach of [Nuance's] contract." *See* JX019 at JX019.001.

175. Nuance rejected the IBM Proposed Amendment. Stipulated Fact 5; *see also* Ricci Decl. ¶ 30; McCann Tr. at 151:8-21; Trial Tr. at 617:14-16 (Kenneth King testimony). IBM admitted that Nuance's Paul Ricci rejected the Proposed Amendment because he was happy with the contract he had. JX019 at JX019.001; July 28 Trial Tr. at 67:24-68:6 (John Kelly testimony).

176. Because Nuance rejected the IBM Proposed Amendment, IBM's internal threat became a reality. IBM put "handcuffs" on the IBM Research Group by restricting its contact with IBM Software Group, and transferred the key IBM Researchers to work on DeepQA outside of the Research Group to ensure that IBM's work on DeepQA would be "out of reach of" the SLA. *See* JX022 at JX022.001; JX019 at JX019.001. IBM also further segmented the IBM Research team after Nuance rejected the IBM Proposed Amendment and kept the Updates made by IBM Research to DeepQA to a minimum. Trial Tr. at 290:3-291:6 (David McQueeney testimony); July 28 Trial Tr. at 70:11-71:12 (John Kelly testimony) (admitting that only minimal improvements were made to the IBM Research version of DeepQA code).

E. IBM Also Withheld Updates Developed By IBM Research Group

177. Despite asserting that the SLA entitled Nuance only to DeepQA Updates from IBM Research Group, IBM did not even deliver all the DeepQA Updates created by the IBM Research Group to Nuance. *See* Schnell Decl. ¶¶ 60-62. Rather, IBM selectively picked and chose new DeepQA modules created by the IBM Research Group, and only delivered to Nuance those new modules that it believed extended the *Jeopardy!* version of DeepQA. *See, e.g.*, PX063 at PX063.001; PX089 at PX089.001.

178. Dr. John Kelly instructed his team that, other than the DeepQA code as it existed as of the date of the SLA, Nuance was only entitled to bug fixes developed by IBM Research. July 28 Trial Tr. at 44:4-22 (John Kelly testimony). However, Dr. Kelly admitted that the SLA actually entitles Nuance to more than just bug fixes, because what IBM agreed to give Nuance were any "modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools that are JDBC compliant and other changes." *Id.* at 44:23-47:16.

179. To help facilitate IBM's selective withholding of even IBM Research Group Updates to the DeepQA code, in March 2012, the IBM Research Group split the DeepQA source code into two different source tree components housed within IBM Research Group: DomainIndependent_SLA_comp ("SLAC") and DomainIndependent_comp ("NONSLAC"). *See* Schnell Decl. ¶ 60; *see also* PX148. IBM made clear that the intent of this component split was to keep track of what code it would provide to Nuance, and what code it would not. *See* PX068 at PX068.001; Trial Tr. at 762:11-763:15 (Eric Brown testimony); PX070 at PX070.003; Devarakonda Tr. at 78:14-79:11; *see also* Schnell Decl. ¶ 61.

180. Both the SLAC and NONSLAC components contained domain independent code developed by IBM Research. Trial Tr. at 764:19-765:2 (Eric Brown testimony).

181. IBM Research Group staff member Murthy Devarakonda worked with others in the IBM Research Group to review the changes made to the DeepQA and decide which ones to transfer to Nuance and which ones to withhold. *See, e.g.*, PX089. However, even though Mr. Devarakonda oversaw the process of delivering DeepQA updates to Nuance, Mr. Devarakonda admitted that he did not have any understanding of what Nuance was entitled to under the SLA with respect to DeepQA, other than being told to deliver particular files to Nuance. *See* Devarakonda Tr. at 76:9-23, 85:9-25.

182. Mr. Devarakonda also did not have any discussions with anyone at IBM about what criteria IBM would use to determine whether a file went into the SLAC or NONSLAC components. Devarakonda Tr. at 105:19-25.

183. IBM's system for picking and choosing what it would deliver to Nuance, without any specific criteria, led to arbitrary decisions about whether to deliver Updates to Nuance. *See, e.g.*, PX089 at PX089.001 ("Moving com.ibm.bluej.search_service.indri out of domainIndependent_comp into domainIndependent-sla_comp does solve the compilation error without causing any other problems. I guess the question remains whether we want to give com.ibm.bluej.search_service.indri to Nuance if we haven't given it to them before.").

184. For example, IBM included its "Watson Core" in its domainlndependent_sla_comp component, which went to Nuance. *See* PX071 at PX071.004. However, "Watson 2.0 Core," which included multi-dimensional inputs/outputs, evidence profiles, inference chaining, and dialog-based learning and reasoning, was kept in components that did not go to Nuance. *Id.*; Trial Tr. at 793:2-13 (Eric Brown testimony) ("Q. [Watson 2.0 Core,] [t]his is domain independent code that was not provided to Nuance, correct? A. That's my understanding, yes.").

185. During discovery in this matter, Nuance requested the NONSLAC source code. *See* Schnell Decl. ¶ 62. IBM declined Nuance's request, however, and the Court did not order its production. *Id.*

186. IBM moved some code from the NONSLAC source tree to the SLAC source tree. *See* Schnell Decl. ¶ 64; PX089 at PX089.001; *see also* Devarakonda Tr. at 129:7-13 (admitting that files have moved back and forth between the SLAC and NONSLAC components).

187. The code that IBM moved from NONSLAC to SLAC contained Updates to the original IBM Research Group DeepQA code. *See* Schnell Decl. ¶ 64. By transferring this code to SLAC, it was eventually delivered to Nuance. *Id.*

188. IBM also moved code from the SLAC source tree to the NONSLAC source tree. *See* Schnell Decl. ¶¶ 65, 68, 97; *see also* PX153[3] ¶¶ 75-101 (incorporated by reference in Schnell Decl. ¶ 68).

189. The code that was moved from SLAC to NONSLAC included DeepQA Updates, *see* Schnell Decl. ¶ 65; however, because the code was moved from SLAC into NONSLAC, these DeepQA Updates were not provided to Nuance. *See id.*; Trial Tr. at 762:11-763:15 (Eric Brown testimony).

190. IBM researchers also developed code in the SLAC source tree after delivery of code to Nuance, and then moved the developed code to NONSLAC before the next delivery to Nuance. *See* Schnell Decl. ¶ 66. This means that IBM researchers worked on the source code within the tree provided to Nuance but then moved the fruits of their labor out of the source tree before the next delivery date so that the development work would not be provided to Nuance. *See id.* at ¶ 63.

[3] The Court held that Mr. Schnell's expert report (PX153) may be referenced where Mr. Schnell uses it to support his testimony. *See* July 30 Trial Tr. at 111:1-22.

191. Some examples of code moving from SLAC to NONSLAC include topics clearly related to DeepQA, like Q/A Pipeline, Annotations, and domain independent NLP (natural language processing). *See id.* at ¶ 67.

192. In addition, code taken out of the SLAC source code tree (which was provided to Nuance) and transferred into the NONSLAC source code tree (which was not provided to Nuance) used the same functionality as DeepQA and would have improved on that functionality. *See id.* at ¶ 69.

193. For example, the transferred source code included functionality such as "term matchers" which "compute[s] a measure of the degree of match between two terms called the term match score." *See id.* at ¶ 70; *see also* PX153 ¶ 83 n.50 (incorporated by reference in Schnell Decl. ¶ 70). Term matchers are used in AI technologies such as DeepQA. *See* Schnell Decl. ¶ 70.

194. The transferred code also provided functionality pertaining to passage scoring methods, which is another function performed by DeepQA. *See id.* at ¶ 71.

195. Other transferred code included files that used a technique called Latent Semantic Analysis (LSA) in order to derive word meanings in text documents, which is also relevant to DeepQA. *See id.* at ¶ 72. IBM made an explicit decision to withhold all LSA DeepQA source code from Nuance. *See id.*; *see also* PX063 at PX063.001.

196. The transferred source code also included passage searching algorithms, which are also Updates to DeepQA. *See* Schnell Decl. ¶ 73.

197. Other transferred source code implemented "coreference" functionality, which allows natural language parsers to find multiple words that reference the same idea, and would therefore also be a DeepQA Update. *See id.* at ¶ 74.

198. The code in the NONSLAC source tree, which was not delivered to Nuance, contains Updates. *See id.* at ¶ 75.

199. By transferring source code out of SLAC to NONSLAC, IBM deprived Nuance of DeepQA Updates. *See id.* at ¶ 75.

VI. IBM Repeatedly Assured Nuance That It Was Delivering All DeepQA Updates

200. By July 2011, Nuance believed it was "on track" to establish an operational DeepQA system and to develop a plan for DeepQA Updates to be delivered to Nuance on a regular basis. *See* Bloom Decl. ¶ 33; PX044 at PX044.003.

201. By November 2011, Nuance believed, based on its discussions with IBM employees that it had "all the parts" it needed to "begin to make [the DeepQA system] runnable." PX060 at PX060.002; *see also* Bloom Decl. ¶ 35; Trial Tr. at 205:18-206:13 (Helgi Bloom testimony) (discussing PX060 and noting that "Nuance struggled in the early – you know, the first 12 months of, of – post that, that's our way, to get DeepQA running within our four walls. And, so, there were times when we thought there were gaps in terms of what we had been provided, there were gaps in terms of what updates we had or hadn't received. I believe this is Jeanne saying she had reassurances from David Gondek that we had everything we needed and we could – we could proceed."). IBM did not tell Nuance otherwise. *See* Bloom Decl. ¶ 35.

202. At times Nuance questioned[4] whether IBM was delivering all Updates to DeepQA and would raise these questions with IBM. *See, e.g.*, PX084; Bloom Decl. ¶ 34.

[4] In its summary judgment motion, which the Court denied, IBM cited to the deposition testimony of former Nuance employee Mark Fanty to allege that Nuance had notice of IBM's breach in January 2012. However, IBM assured Nuance, including beyond that date, that it was receiving all Updates. *See, e.g.,* PX084 (February 21, 2013 email chain from IBM indicating that "we will deliver Modifications to the Watson code as per the SLA" and quoting the SLA).

203. IBM representatives repeatedly assured Nuance both verbally and in documents that IBM was delivering, and would deliver during the term of the SLA, all Updates to DeepQA that were being developed by IBM, regardless of where within IBM the Updates were being developed. *See* McCann Tr. at 184:7-184:19, 235:3-235:11; Sejnoha Tr. at 135:9-135:20; Petro Decl. ¶ 19; Trial Tr. at 239:21-240:2 (Helgi Bloom testimony) ("[T]here were times when we had concerns and we sought, you know, mostly through Jeanne McCann, but I don't think exclusively – sought reassurance from IBM and received it."); Sejnoha Tr. at 140:18-141:15; PX054; PX084.

204. Specifically, IBM employees, including David McQueeney and Murthy Devarakonda, repeatedly assured Ms. McCann and other Nuance employees that Nuance was receiving all Updates under the SLA. *See* McCann Tr. at 184:7-184:19, 235:3-235:11, 238:19-239:8; PX084 at PX084.001; Trial Tr. at 123:2-10 (Joseph Petro Testimony) ("[W]e had an escalation process whenever we had concerns about anything in the project. We escalated this type of stuff up to Jeanne, and it's my understanding again we kept getting assurances that there were no issues there.").

205. Ms. McCann spoke with Mr. McQueeney on at least three separate occasions to inquire about the DeepQA Updates and each time he assured Ms. McCann that Nuance was getting all of IBM's work. McCann Tr. at 238:19-239:8; *see also id.* at 184:7-19 (Mr. McQueeney told McCann that Nuance's codebase was the same as IBM's core DeepQA codebase and that Nuance was getting the full set of Updates).

206. Mr. McQueeney admitted that Ms. McCann questioned him to make sure Nuance was receiving all of the updates it was entitled to, and he testified that it is "certainly possible that in conversations with Ms. McCann[, he] reassured her that IBM was complying with its obligations under the SLA to deliver modifications." Trial Tr. at 299:17-300:2 (David McQueeney testimony).

Even though Mr. McQueeney did not specifically remember assuring Ms. McCann that Nuance had received everything it was entitled to, he testified that he suspects that those words were exchanged because he thought Ms. McCann was diligent in making sure that she received the correct updates. *Id.* at 300:3-12; *see also id.* at 313:5-10 ("I can remember Jeanne on many occasions asking very pointed questions to make sure she was getting all of the updates that she was entitled to, which was a reasonable thing for a person in her position to be doing.").

207. Likewise, IBM's Kevin Reardon testified that after the parties signed the SLA, he heard some complaints from Nuance that Nuance believed it was not receiving sufficient updates under the SLA, but his recollection is that whenever Nuance raised those complaints, he and Nuance got them sorted out. *See* Trial Tr. at 397:2-9 (Kevin Reardon testimony).

208. Mr. Devarakonda also provided assurances to Nuance. *See* PX054 at PX054.001. In October 2011, for example, Mr. Devarakonda assured Mark Fanty that Nuance and IBM both had the same domain independent DeepQA code base. *See id.* at PX054.001.

209. Likewise, in February 2013, when Nuance's Mark Fanty asked Mr. Devarakonda to clarify which domain independent work Nuance would continue to receive from IBM, Mr. Devarakonda responded, in an email that David McQueeney was copied on, that IBM would "deliver Modifications to the Watson code as per the SLA" and quoted the Licensed IBM Background Software definition from the SLA. *See* PX084 at PX084.001; Trial Tr. at 300:13-301:20 (David McQueeney testimony). As Mr. McQueeney testified, neither he nor Mr. Devarakonda relayed in the email that IBM would only deliver modifications made by IBM Research Group. Trial Tr. at 302:8-11 (David McQueeney testimony).

210. This February 21, 2013 email chain was then forwarded to IBM's Eric Brown, who also did not tell Nuance that it would not be receiving DeepQA Updates. *See* DX-42; Trial Tr. at

766:20-767:2 (Eric Brown testimony) ("Q. So, as of February 21, 2013, IBM told Nuance that it will deliver modifications to the Watson code as per the SLA, correct? A. Yes. Q. And you never once told Nuance, after the date of this e-mail, that Nuance would no longer be getting modifications to the Watson code as per the SLA, correct? A. Not to my recollection.").

211. IBM executives also assured Nuance that they would deliver all DeepQA Updates to Nuance. Ricci Decl. ¶¶ 36-37. For example, after Paul Ricci specifically asked IBM why it was not making more progress in DeepQA's development, John Kelly told him that IBM was working on progressing and developing DeepQA, IBM was still very committed to DeepQA and things take time, and IBM was doing everything they said they would do, including providing Nuance all of IBM's work on DeepQA. *Id.*; Trial Tr. at 521:21-522:19 (Paul Ricci testimony) ("I would bring this up with John [Kelly], with whom I've done $200 million of business over the years, and John would assure me that, no, we were getting everything.").

212. Nuance relied on the representations made by David McQueeney, Murthy Devarakonda, Kevin Reardon, John Kelly, and others at IBM because Nuance had no way to independently confirm whether IBM was delivering all DeepQA Updates to Nuance. Petro Decl. ¶ 21 ("Nuance had no way to verify what IBM was doing with DeepQA."); Bloom Decl. ¶ 36; *see also* McCann Tr. at 184:7-184:19; Sejnoha Tr. at 135:9-135:20.

213. Nuance had no access to IBM's code and therefore could not check to see if IBM had developed Updates that they had not provided to Nuance. McCann Tr. at 184:7-184:19 ("We were not in a position to go in and check their code. We relied on Dave McQueeney for assurances that the code base was the same and that we were receiving all the updates."); *see also* Stubley Tr. at 155:18-23 (noting that Nuance did not have access to any IBM source code other than what IBM provided).

214. Based on feedback from Nuance's own collaboration with IBM and from what Nuance heard from the industry, it appeared that IBM was having difficulty achieving accuracy with DeepQA outside of the *Jeopardy*! space. McCann Tr. at 217:12-217:21; Petro Decl. ¶ 20; DX-101 at DX-101-003 ("The original Jeopardy DeepQA/Watson engine proved very hard to port to a medical question answering (QA) task; even when [Nuance] worked with IBM Research, performance plateaued at ~ 45%."); Trial Tr. at 90:18-91:2 (Joseph Petro testimony) (testifying that Nuance was able to improve the accuracy of DeepQA in the healthcare space above what IBM had achieved); *id.* at 112:1-23 ("[T]here wasn't really any results being produced in – in the market either. So, you know, one of the things we actually contemplated is, well, just maybe the stuff isn't – isn't that good and the team isn't actually doing that well . . . what was happening in the market tempered our expectations about what we should see actually internally.").

215. Therefore, since IBM appeared to be having very little success with DeepQA, Nuance had no basis to know that IBM was withholding DeepQA Updates. Petro Decl. ¶ 20; Trial Tr. at 112:1-23 (Joseph Petro testimony).

216. IBM's practice of using "Watson" as a broad descriptor in the marketplace further prevented Nuance from assessing whether it was receiving all the updates it was entitled to under the SLA. *See* Trial Tr. at 344:12-25 (Kevin Reardon testimony) ("[W]e began marketing . . . the technology that was DeepQA and that had won *Jeopardy!* as Watson. And then as we continued to develop ideas about what we were doing, we used Watson as the -- the brand, if you will, for our artificial intelligence, which involved many, many other things besides just DeepQA."); Rhodin Tr. at 28:7-28:20 (testifying that "Watson" in the context of the Watson group refers to "all of [the] artificial intelligence products and projects we were doing at that time, and has since been expanded to include much of the predictive Analytics portfolio"); Morello Tr. at 10:19-23

("Q. So Watson Core Technology, we mentioned that earlier how you referred to yourself. That is a name for a group that works on Watson? A. Broad terminology."). IBM began using the moniker Watson for product offerings starting in January of 2013. Trial Tr. at 345:18-346:2 (Kevin Reardon testimony); *see also* Trial Tr. at 114:17-115:11 (Joseph Petro testimony) (noting that the "Watson moni[ker] got applied to everything . . . [IBM] seemed to be calling everything Watson, so it was very – again, this is the fog on the swamp. It was very hard to understand what [Watson] actually was."); DX-101 at DX-101-002 (Mr. Petro writing that "Any Watson success we have heard about is not Watson at all… they are just calling it Watson.").

217. IBM's deliveries of DeepQA Updates to Nuance were also delayed by the need to test the deliveries in IBM's "sandbox" prior to delivery. *See* PX085; Trial Tr. at 267:20-269:10 (David McQueeney testimony). IBM "had to create a 'sand box' environment . . . in Yorktown that is configured as similarly as possible to Nuance, and get [Nuance's] drops of code working here first" before delivery to Nuance. Trial Tr. at 267:20-269:10 (David McQueeney testimony). This would ultimately cause an extension of time between when the update was created and when it was then delivered to Nuance. *Id.* at 270:6-16.

218. The Updates Provision did not set a period of time for when IBM was required to deliver the DeepQA Updates. JX001 at JX001.253; Trial Tr. at 390:10-13 (Kevin Reardon testimony).

219. In 2015, Nuance learned for the first time that IBM was not delivering all of its DeepQA Updates to Nuance. Trial Tr. at 428:7-428:19 (William LaFontaine testimony); *id.* at 551:8-552:4 (Paul Ricci testimony); Ricci Decl. ¶ 40.

220. Specifically, in April 2015, Bill LaFontaine proposed that Nuance look at the Watson Paths asset but then sent Jeanne McCann an email on April 13, 2015, telling her that

"Watson PA[TH]S only works with the software group version of Watson and since neither it nor the base Watson code were built from the Research code, there is no easy way to use it as a standalone capability." Trial Tr. at 425:10-24 (William LaFontaine testimony); PX105 at PX105.001. As IBM's William LaFontaine relayed to IBM's John Kelly, he thought Nuance's Ms. McCann "was surprised to see [that the code bases] were completely separate." Trial Tr. at 431:4-6 (William LaFontaine testimony); PX108 at PX108.002.

221. Prior to Mr. LaFontaine's April 13, 2015 email, no one from IBM told Nuance that IBM had breached the SLA. Trial Tr. at 700:10-15 (Eric Brown testimony) ("Q. And to be clear, you are not aware of anyone from IBM informing Nuance that the code had been split and that Software Group was going to be developing DeepQA, but that IP would not be provided to Nuance, correct? A. I -- that I am not aware of anybody informing Nuance of that, yes, that's correct."); *id.* at 766:20-767:2 ("Q. So, as of February 21, 2013, IBM told Nuance that it will deliver modifications to the Watson code as per the SLA, correct? A. Yes. Q. And you never once told Nuance, after the date of this e-mail, that Nuance would no longer be getting modifications to the Watson code as per the SLA, correct? A. Not to my recollection."); *id.* at 431:17-25, 432:12-18 (William LaFontaine testimony) ("Q. So prior to sending your April 13th, 2015, e-mail to Ms. McCann regarding Watson PA[TH]S, you had no discussions with anyone at Nuance about whether Nuance has or believed it was receiving any of software[] group's work on DeepQA, right? A. Correct. . . . Q. You just assumed Nuance knew it wasn't receiving the DeepQA work from software group, right? A. Correct. Q. In fact, you had no way of knowing whether Nuance was aware that it was not receiving software group's work on DeepQA, right? A. Correct."); *id.* at 628:19-629:7 (Kenneth King testimony) ("Q. So if you had no idea that there was a separate code base for the IBM Software Group for DeepQA in 2017, you couldn't – you certainly couldn't have

told anyone at Nuance that a separate Software Group code base existed prior to 2017, right? A. Correct."); McCann Tr. at 201:2-201:21 ("Q. Did you ever hear that IBM Software group would not allow its personnel to collaborate with the IBM Research group for fear that such collaboration would pull IBM Software group work into the scope of the DeepQA license agreement? A. No."); Sejnoha Tr. at 96:16-97:1 (testifying that it came to his attention through Jeanne McCann sometime in 2015 that the DeepQA code had been forked between IBM Research Group and IBM Software Group); Ricci Decl. ¶ 40.

222. There is not a single document in this case whereby IBM told Nuance that it was not getting all Updates. *See, e.g.,* July 28 Trial Tr. 56:23-57:4 (John Kelly testimony).

223. Nuance filed suit on June 30, 2016, which is less than two years from when Nuance knew that IBM was not providing all Updates to DeepQA. *See* Compl.

VII. IBM Developed Watson Products With Updates IBM Withheld From Nuance

A. Overview

224. IBM Software Group has developed products that use DeepQA. Trial Tr. at 264:14-16 (David McQueeney testimony); *id.* at 745:8-14, 746:13-20 (Eric Brown testimony) (testifying that Watson is a brand that represents a large collection of capabilities, and some of those capabilities descend directly from the DeepQA system that IBM built for *Jeopardy!*).

225. The "blue-washed" DeepQA code base initially developed by the Emerging Technologies Group within IBM Software Group and then delivered to the Watson Division and, later, the Watson group, eventually developed into the products Watson for Oncology (Oncology), Watson Engagement Advisor (WEA), and Watson Discovery Advisor (WDA), and Natural Language Classifier. *See* Trial Tr. at 734:9-13, 744:23-745:7 (Eric Brown testimony); July 28 Trial Tr. at 103:9-11, 106:18-23, 112:10-15, 113:18-114:5, 119:10-120:3 (Rob High testimony);

Morello Tr. at 31:8-31:14; Schnell Decl. ¶¶ 24, 78. The use of DeepQA source code in these products are central to their operation. Schnell Decl. ¶ 158.

226. Source code for WEA, WDA, and Oncology overlaps with DeepQA source code, including a large majority of the code. *See* Schnell Decl. ¶ 79. For example, 71.7% of the components that were in DeepQA in September 2012 were in WEA in 2017. *See id.* Natural Language Classifier source code also overlaps with DeepQA source code. *See id.*

227. Although the focus of the SLA is on domain independent updates, domain dependent products may also fall under the scope of the SLA to the extent work on those products impacted the domain independent DeepQA code base. *See* Trial Tr. at 116:5-117:5 (Joseph Petro testimony) ("Q. Could work on a domain dependent product impact the domain independent core? A. Yeah, absolutely. It does every day at Nuance."); *id.* at 514:18-515:2 (Paul Ricci testimony) ("[W]e weren't entitled to application level software unless, of course, it embedded changes in the core in the application.").

228. The new code generated by IBM Software Group was not provided to Nuance. July 28 Trial Tr. at 79:16-20 (John Kelly testimony).

229. IBM did not provide Watson Engagement Advisor, Watson Discovery Advisor, Watson for Oncology or Natural Language Classifier to Nuance. *Id.* at 109:21-110:2, 119:4-9, 121:16-22, 125:3-5 (Rob High testimony) (noting that IBM did not provide Watson Engagement Advisor, Watson Discovery Advisor, Watson for Oncology, or Natural Language Classifier to Nuance); Schnell Decl. ¶¶ 89-91, 100, 109; Trial Tr. at 745:5-7 (Eric Brown testimony).

B. Watson Engagement Advisor

230. Watson Engagement Advisor ("WEA") was a product developed by the IBM Software Group to work in the customer support space. July 28 Trial Tr. at 106:6-8, 106:18-20

(Rob High testimony). IBM created WEA with the expectation that it could be applied and adapted to different industries with common needs. *Id.* at 106:24-107:4.

231. There is significant overlap between the WEA source code and the DeepQA source code. *See* Schnell Decl. ¶ 81; *see also* PX153 ¶¶ 108-142 (incorporated by reference in Schnell Decl. ¶ 81).

232. WEA "started with DeepQA" and reused some components of the original DeepQA code, including the question analysis component and a few pieces of the linguistic analysis component. *See* Schnell Decl. ¶ 90; Trial Tr. at 734:9-13 (Eric Brown testimony); July 28 Trial Tr. at 107:8-108:15 (Rob High testimony).

233. WEA followed the same architecture as DeepQA but "made modifications" to that architecture to extract the passages that look most relevant to the question being asked. July 28 Trial Tr. at 108:20-24 (Rob High testimony). Supporting evidence passages were also part of the DeepQA pipeline as created in IBM Research. *Id.* at 114:9-11.

234. WEA improved on some of DeepQA's functions, including DeepQA's ranking function. *See id.* at 108:25-109:20 (Rob High testimony).

235. The word "DeepQA" appears in the WEA source code 104,562 times and the word "Jeopardy" appears in the WEA source code 406,128 times. *See* Schnell Decl. ¶ 82. This is indicative of a common origin between DeepQA and WEA because "DeepQA" and "Jeopardy" are not terms of art in computer programming, and the only reason to have that many references to these terms within a software product would be because of a common origin. *See id.*

236. WEA also shares thousands of source code files in common with DeepQA. *See id.* at ¶ 83. In the WEA "main" component alone, there are 862 files in common with DeepQA, with

the same name and author. *See id.* These files originated in the IBM Research Group, have the same author, and share the same base source code. *See id.*

237. Based on the programmer notes and filenames, including the main component, "qa_pipeline_comp," the source code control system ("SCCS") metadata for WEA also indicates that it is clearly for a question answering system. *See id.* at ¶ 84. Moreover, the SCCS metadata for both WEA and for the SLAC source tree prior to IBM Research Group's March 2012 component split of the DeepQA code into SLAC and NONSLAC are mostly identical. *See id.*

238. Some of the WEA SCCS programmer notes even refer to the fact that the code is based on the *Jeopardy!* supercomputer and there are references to "Jeopardy," "JeopardyClue," "Jeopardy Category" (or its abbreviation JCategory) and other Jeopardy-related phraseology throughout WEA. *See id.* at ¶ 85; *see also* PX153 ¶¶ 114-118 (incorporated by reference in Schnell Decl. ¶ 85).

239. The numerous references to Jeopardy in the WEA source code and SCCS metadata are further indications of the common origin between WEA and DeepQA. *See* Schnell Decl. ¶ 86.

240. There were also numerous files added to WEA along the course of its development that originated with IBM Research Group and/or the DeepQA source code. *See id.* at ¶ 87; *see also* PX153 ¶¶ 121-130 (incorporated by reference in Schnell Decl. ¶ 87). In fact, the phrase "From Research" appears in WEA metadata programmer notes one hundred and eighty-three (183) times. *See* Schnell Decl. ¶ 87.

241. Entries in the WEA metadata show that certain DeepQA-related files were never delivered to Nuance. *See id.* at ¶ 88; *see also* PX153 ¶¶ 131-133 (incorporated by reference in Schnell Decl. ¶ 88).

242. DeepQA files were also added into WEA and then updated by the IBM developers working on WEA. *See* Schnell Decl. ¶ 89; *see also* PX153 ¶¶ 134-142 (incorporated by reference in Schnell Decl. ¶ 89). These Updates were not delivered to Nuance. *See* Schnell Decl. ¶ 89; *see also* PX153 ¶¶ 134-142 (incorporated by reference in Schnell Decl. ¶ 89).

243. In sum, WEA was developed from, and contains Updates to, DeepQA. *See* Schnell Decl. ¶ 91; *see also* Morello Tr. at 31:8-31:14 (describing Watson Engagement Advisor as containing "remnants" of DeepQA).

C. Watson Discovery Advisor

244. Watson Discovery Advisor's ("WDA") purpose was to help people think of the questions they're not thinking to ask. July 28 Trial Tr. at 112:16-19 (Rob High testimony). It was designed for situations where the objective of the search is not merely to identify an answer to a question, but to retrieve and rank the supporting evidence for that answer. *Id.* at 112:16-23.

245. IBM created WDA with the expectation that it could be applied and adapted to different industries with common needs. *Id.* at 112:25-113:3.

246. DeepQA was a "foundation" for WDA. *See* Trial Tr. at 744:23-745:7 (Eric Brown testimony); PX151 at PX151.001 ("The Watson Discovery Advisor product (WDA) is a direct descendent of the Watson Jeopardy! system."); July 28 Trial Tr. at 117:16-20 (Rob High testimony) (WDA follows the "same basic pattern" as DeepQA and "reuse[d] some of the underlying annotator's components").

247. WDA used a "derivative" of DeepQA and shifted the focus from accuracy in an answer to accuracy in the supporting evidence. *See* July 28 Trial Tr. at 113:18-114:5 (Rob High testimony); Schnell Decl. ¶ 99; Rhodin Tr. at 87:8-88:8 (noting that Watson Discovery Advisor used the DeepQA code).

248. The focus of WDA was supporting evidence passages, which were part of the original DeepQA pipeline created by IBM Research. *See* July 28 Trial Tr. at 113:18-114:11, 118:7-119:3 (Rob High testimony). WDA performed the supporting evidence passages function "better than DeepQA." *Id.* at 118:15-119:3.

249. There is significant overlap between WDA source code and DeepQA source code. *See* Schnell Decl. ¶ 92; *see also* PX153 ¶¶ 143-158 (incorporated by reference in Schnell Decl. ¶ 92).

250. Most of the files in WEA that overlap with DeepQA also overlap with WDA. *See* Schnell Decl. ¶ 93. The word "DeepQA" appears in WDA 91,257 times. *See id.* The word "Jeopardy" appears in WDA 406,377 times. *See id.* This is indicative of a common origin between DeepQA and WDA because "DeepQA" and "Jeopardy" are not terms of art in computer programming, and the only reason to have that many references to these terms within a software product would be because of a common origin. *See id.*

251. WDA also shares 5,632 source code files in common with DeepQA. *See id.* at ¶ 94. These files originated in the IBM Research Group and have the same author and share the same base source code. *See id.*

252. There also appears to be a connection between WDA and WEA as most of the source code in WEA is also in WDA. *See id.* at ¶ 95. Additionally, programmer notes in WEA refer to the fact that changes were made for the purpose of improving WDA. *See id.* Outside of any user interface (UI) changes, there does not appear to be any core functionality differences between WEA and WDA, nor are there many file differences for the files that are common between them. *See id.* Out of 364 WDA components, 301 of them were the same as WEA (which has 347 components). *See id.*

253. As with WEA, there are references to "Jeopardy," "JeopardyClue," "Jeopardy Category" (or its abbreviation JCategory) and other Jeopardy-related phraseology throughout WDA. *See id.* at ¶ 96.

254. Files containing DeepQA Updates that moved from the SLAC to NONSLAC source tree prior to the Nuance deliveries ultimately became part of WDA. *See id.* at ¶ 97. For example, there are term matcher source files that were updated while in the SLAC source code tree, ultimately transferred from SLAC to NONSLAC (and therefore not delivered to Nuance), but are found in WDA. *See id.*; *see also* PX153 ¶¶ 93-96, 148-149 (incorporated by reference in Schnell Decl. ¶ 97).

255. Based on the WDA source code and SCCS metadata, there are DeepQA files that were added into WDA and then updated by the IBM developers working on WDA. *See* Schnell Decl. ¶ 98. This resulted in DeepQA Updates that were not delivered to Nuance. *See id.*; *see also* PX153 ¶¶ 150-156 (incorporated by reference in Schnell Decl. ¶ 98).

256. WDA was developed from, and contains Updates to, DeepQA. *See* Schnell Decl. ¶ 100; Trial Tr. at 744:23-745:7 (Eric Brown testimony) ("I believe that DeepQA certainly started as a foundation for the [Watson Discovery Advisor] product"); *see also* Morello Tr. at 31:8-31:14 (describing Watson Discovery Advisor as containing "remnants" of DeepQA).

D. Watson for Oncology

257. Watson for Oncology (Oncology) is a product that provides patient treatment options for oncologists. July 28 Trial Tr. at 119:10-17 (Rob High testimony); *Id.* at 141:1-6 (Thomas Eggebraaten testimony). Oncology uses the DeepQA architecture to provide clinical evidence in support of the treatment options. *Id.* at 119:24-120:3 (Rob High testimony).

258. Nuance's expert did not have access to a complete set of all Oncology source code or SCCS metadata. *See* Schnell Decl. ¶ 102; *see also* PX153 ¶¶ 159-161 (incorporated by reference

in Schnell Decl. ¶ 102). This limited his ability to fully evaluate the Oncology product. *See* Schnell Decl. ¶ 102.

259. Nonetheless, there is significant overlap between Oncology and the DeepQA source code. *See id.* at ¶ 101; *see also* PX153 ¶¶ 159-173 (incorporated by reference in Schnell Decl. ¶ 101).

260. For example, the non-domain-specific portion of the Oncology source code uses the same code with the same filenames and authors as DeepQA. *See* Schnell Decl. ¶ 103. As evidence of this, Oncology references the term "DeepQA" 6,888 times in its source code. *Id.* This is indicative of a common code base between Oncology and DeepQA. *Id.* By comparison, DeepQA itself as delivered in September 2010 only references the term "DeepQA" 4,315 times. *Id.*

261. In addition to the commonality of terms, Oncology and DeepQA share data structures that one would not expect for a domain-specific application such as Oncology. *See id.* at ¶ 104. For example, in Oncology, "questions" were stored in a data structure called JClue, which stands for Jeopardy Clue. *See id.* Each question was placed in a structure that had a category, question, and dollar value. *See id.* This is unusual for an Oncology application, especially because the category and dollar value were always pre-set to a default value and were not used. *See id.* Further, the directory "com.ibm.bluej" itself is used by Oncology 70,605 times, which clearly pertains to DeepQA since "BlueJ" was the original IBM codename for the Jeopardy Supercomputer. *See id.*

262. IBM Research Group personnel (or personnel who were formerly associated with IBM Research Group), including Michael S. Moore, Adam Lally and Eric Brown, wrote code that is used in both DeepQA and Oncology. *See* Schnell Decl. ¶ 105; Eggebraaten Decl. ¶ 13 (noting that Moore, Lally and Brown were "original authors" of files utilized in the Oncology source code).

263. Oncology code is based on the DeepQA code, and includes DeepQA code in an enhanced or improved form. *See* Schnell Decl. ¶¶ 106, 108; *see also* PX153 ¶¶ 165-168; (incorporated by reference in Schnell Decl. ¶ 106); PX150; Trial Tr. at 740:12-22 (Eric Brown testimony).

264. The Oncology source code files also contain Updates to the DeepQA functionality, such as natural language processing and natural language annotation. *See* Schnell Decl. ¶ 107; *see also* PX153 ¶¶ 169-171 (incorporated by reference in Schnell Decl. ¶ 107).

265. IBM has applied for and/or received patents for several technologies that are used in Oncology and could be used generally for question answering technology. PX224; PX228; July 28 Trial Tr. at 161:10-166:2, 168:2-173:5 (Thomas Eggebraaten testimony) (admitting that PX224 and PX228 disclose technology used in Oncology that could also be used generally in question answering systems).

266. Similar to DeepQA, Oncology uses a machine learning algorithm to classify answers and associate a score with each one based on machine learning techniques and then that score is used to rank the treatments in ascending order. July 28 Trial Tr. at 141:23-142:10 (Thomas Eggebraaten testimony).

267. Question analysis, candidate answer generation, and supporting evidence retrieval are all components of the Oncology pipeline. July 28 Trial Tr. at 142:19-143:2 (Thomas Eggebraaten testimony). These components are also part of DeepQA's pipeline. Trial Tr. at 680:19-682:1 (Eric Brown testimony).

268. The Oncology pipeline also includes treatment scoring, final merger and post merger components. July 28 Trial Tr. at 142:19-143:5 (Thomas Eggebraaten testimony). These components are also part of DeepQA's pipeline. Trial Tr. at 680:19-682:1 (Eric Brown testimony).

269. In Oncology, the hypothesis and evidence scoring steps for DeepQA were "modified" to be useful in the medical context. *See* July 28 Trial Tr. at 120:19-121:15 (Rob High testimony).

270. Several components of the Oncology pipeline call upon the IBM Software Group's version of DeepQA, referred to as the "Watson Core Library," in order to function. July 28 Trial Tr. at 143:6-10 (Thomas Eggebraaten testimony). Those components include, but are not limited to, the question analysis component, the supporting evidence retrieval component, and the final merger component. July 28 Trial Tr. at 143:15-145:18 (Thomas Eggebraaten testimony).

271. These Oncology components call upon the IBM Software Group's version of the DeepQA code so that the Oncology team does not need to rewrite code to perform that function. July 28 Trial Tr. at 143:11-14 (Thomas Eggebraaten testimony).

272. Oncology must use the IBM Software Group's version of the DeepQA code in order to function. July 28 Trial Tr. at 147:9-15 (Thomas Eggebraaten testimony). Each time Oncology is used it calls upon IBM Software Group's version of the DeepQA, the Watson Core Library. *Id.* at 148:6-8.

273. The Oncology team was able to request access to the Watson Core Library in order to copy source code files for its own use. July 28 Trial Tr. at 148:9-149:9 (Thomas Eggebraaten testimony). Updates made by the Oncology team to the source code from the Watson Core Library were not transferred back into the Watson Core Library. *Id.* at 149:10-17. These modifications made by the Oncology team also were not transferred to Nuance. *Id.* at 149:18-21.

274. If the Oncology team detected a bug in the Watson Core Library, the Oncology team would report that bug to be fixed by IBM Software Group but, in the interim, the Oncology

team would create its own fix. July 28 Trial Tr. at 150:7-151:15 (Thomas Eggebraaten testimony). These bug fixes were not provided to Nuance. *Id.* at 151:16-18.

275. The Oncology team received updated versions of the IBM Software Group's version of the DeepQA code several times a year for several years. July 28 Trial Tr. at 140:11-18 (Thomas Eggebraaten testimony).

276. In sum, Oncology was developed from, and contains Updates to, DeepQA. *See* Schnell Decl. ¶ 109; *see also* Trial Tr. at 739:13-16 (Eric Brown testimony) ("Q. . . . For example, the Watson for Oncology solution that has been released started with a version of DeepQA, correct? A. To my knowledge, yes."); *id.* at 781:25-782:14 (Eric Brown testifying that Oncology "conceptually, . . . how it supports treatment recommendations, it has some similarities to the way the [DeepQA] pipeline that was described this morning actually operates. So it certainly was inspired by the way DeepQA works"); *see also* PX224 at PX224.009 (disclosing technology used in Oncology and stating, "The Watson™ system is built on IBM's DeepQA™ technology used for hypothesis generation, massive evidence gathering, analysis, and scoring").

E. Natural Language Classifier

277. Nuance's expert did not have access to NLC SCCS metadata, which IBM declined to provide. *See* Schnell Decl. ¶ 111. This limited his ability to fully evaluate the NLC product. *See id.*

278. Nonetheless, there is overlap between NLC and DeepQA. *See* Schnell Decl. ¶ 110; *see also* PX153 ¶¶ 174-183 (incorporated by reference in Schnell Decl. ¶ 110).

279. NLC classifies the intent of an expression, and will understand a user's question even if the same question is asked in varying ways. *See* Schnell Decl. ¶ 112; *see also* Xiang Tr. at 53:8-14. IBM describes NLC as an improvement to the question analysis component of DeepQA, developed in order to classify intent. *See* Schnell Decl. ¶ 112; *see also* PX001 at PX001.062-63.

280. There are numerous common files between NLC and DeepQA, including ones that had been enhanced in NLC. *See* Schnell Decl. ¶ 113; *see also* PX153 ¶¶ 179-81 (incorporated by reference in Schnell Decl. ¶ 113). These enhancements are examples of Updates in NLC that would also be Updates to DeepQA but were not delivered to Nuance. *See* Schnell Decl. ¶ 113.

281. In July 2015, IBM stated that NLC was "the first piece of technology that [they were] releasing that [came] out of the work done on the Watson Engagement Advisor and is the evolution of the technology that played Jeopardy." *See* Schnell Decl. ¶ 114; *see also* PX107 at PX107.001. IBM has also described NLC as an evolution of the DeepQA question analysis step, noting that "[t]he question analysis step of the pipeline is now a set of highly configurable *microservices* that greatly enhance the ability to customize the system for a particular domain []." *See* Schnell Decl. ¶ 114; *see also* PX001 at PX001.051, PX001.68 (Figure 4-24 discussed *infra* at ¶ 288); July 28 Trial Tr. at 124:1-125:2 (Rob High testimony) (admitting that NLC, Natural Language Understanding, and Tone Analyzer are a new set of technologies that were introduced to perform DeepQA's question analysis function).

282. NLC contains DeepQA Updates. *See* Schnell Decl. ¶ 115.

F. Additional APIs

283. An API (application programming interface) is software that allows you to get access to the function or service that the API represents. July 28 Trial Tr. 122:18-23 (Rob High testimony).

284. Nuance requested the SCCS metadata for six other IBM APIs: Document Conversion, Watson Discovery Service ("Discovery"), Natural Language Understanding, Retrieve and Rank, Watson Explorer and Watson Knowledge Studio. *See* Schnell Decl. ¶ 119. IBM declined this request and the Court did not order its production. *Id.* Nuance's expert was therefore only able to review the final source code for these APIs. *Id.* This limited his ability to fully evaluate these

other products. *Id.* Nonetheless, the evidence shows that these APIs are Updates. *See infra* ¶¶ 285-93.

285. These APIs are part of IBM's Watson Developer Cloud developed by IBM Software Group, some of which are based on DeepQA. Trial Tr. at 754:4-12 (Eric Brown testimony).

286. All of these APIs, as well as IBM's Tone Analyzer product (together, the "Additional APIs"), improve upon the DeepQA functionality. *See* Schnell Decl. ¶¶ 121-53; *see also* PX153 ¶¶ 184-217 (incorporated by reference in Schnell Decl. ¶ 121).

287. All of these Additional APIs are "RESTful" products, meaning they are able to use client-server functionality in order to offload the computer-intensive work to remote, larger and more powerful servers. *See* Schnell Decl. ¶ 120. IBM's Bluemix platform is able to host these products, and clients can pick and choose what services they want to be performed remotely. *See id.*

288. As discussed above, Nuance was entitled to improvements to the functionality of DeepQA, and, from a technical perspective, these Additional APIs are upgrades to DeepQA. *See* Petro Decl. ¶¶ 14-15 ("My understanding is that under the SLA, all Updates that touched the DeepQA core codebase, contributed to the core codebase, or contributed to or improved on DeepQA's functionality were supposed to flow back to the core codebase and to Nuance, irrespective of where within IBM the Updates were developed."); Trial Tr. at 73:17-74:25 (Joseph Petro testimony) ("[T]he [WebEx] presentation represented the functionality of DeepQA. All the work flows, the process, the content, how they approached the market."); *id.* at 682:3-11 (Eric Brown testimony) (testifying for IBM that his understanding of the Updates Provision in the SLA is that Nuance was entitled to any files, including a whole new file or set of files, that better

performed the functions that were originally contemplated in the DeepQA system); PX032 at PX032.003 (IBM describing the SLA Update provision as including "any derivative works and improvement (licensed under the SLA) thereof, and including any new functionality that enhances [DeepQA]"); *See* Schnell Decl. ¶¶ 121-153 (opining that the Additional APIs improve upon the DeepQA functionality outside DeepQA); PX153 ¶¶ 184-217 (incorporated by reference in Schnell Decl. ¶ 121); *compare* PX001 at PX001.060, fig. 4-6, *with* PX001 at PX001.068, fig. 4-24.

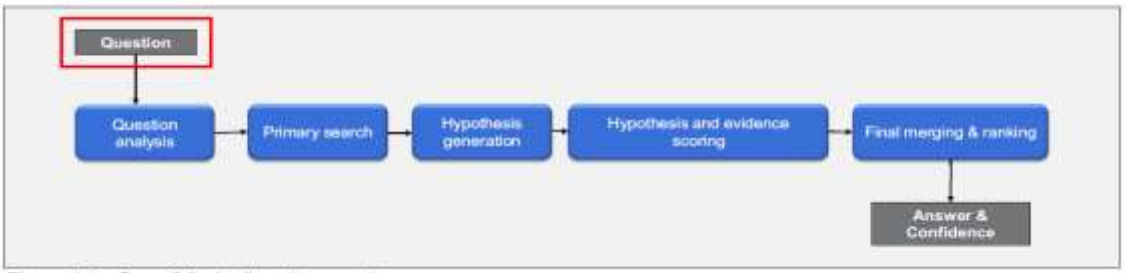

Figure 4-6 DeepQA pipeline: the question

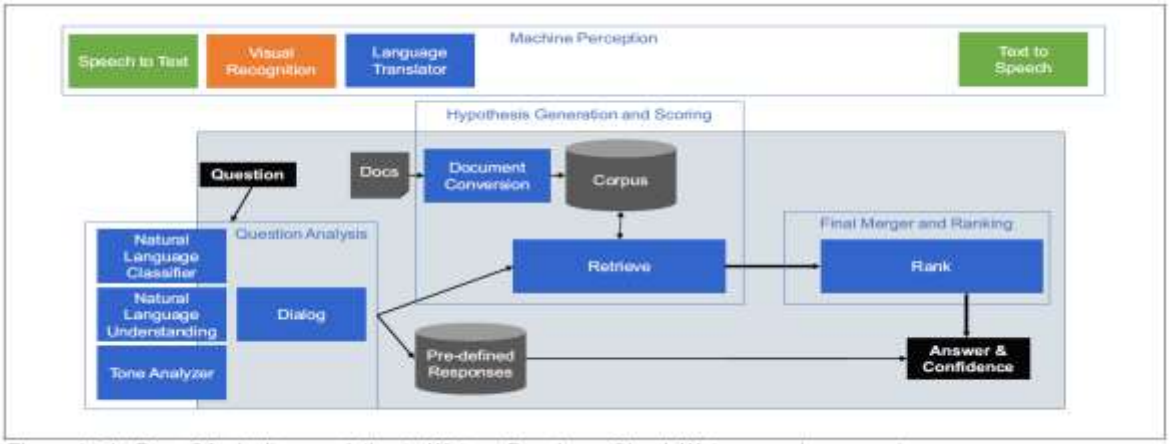

Figure 4-24 DeepQA pipeline; evolution to Watson Developer Cloud: Watson services overview

289. As clear from the above charts from IBM's Redbook,[5] the architecture of DeepQA and the architecture of the Watson Developer Cloud are substantially similar. *Compare* PX001 at

[5] The IBM Redbook, which details the "evolution" of DeepQA to the Watson Developer Cloud, is a technical document authored by IBM researchers, Watson Solution Architects, software engineers, and IT technical staff in various disciplines including machine learning and natural

PX001.060, fig. 4-6, *with* PX001 at PX001.068, fig. 4-24; July 28 Trial Tr. at 116:4-11 (Rob High testimony). IBM's Rob High even confused the DeepQA architecture with the Watson Developer Cloud architecture at trial. July 28 Trial Tr. at 116:4-11 (Rob High testimony) (Rob High reviewing figure 4-6, the DeepQA architecture, and testifying that "this is the [Watson] developer cloud architecture. It's similar to DeepQA.").

290. As indicated in figure 4-6, DeepQA starts with a natural language question, then the question is analyzed, next the potential candidate answers are generated, then a series of processing steps, or analytics, evaluate the candidate answers, then the individual candidate answers are scored based on those analytics, then ranked with a confidence measure, and, ultimately, the system provides an answer to the question. *See* PX001 at PX001.060; Trial Tr. at 680:19-682:1 (Eric Brown testimony); July 28 Trial Tr. at 116:17-117:14 (Rob High testimony); *see also* Schnell Decl. ¶ 33.

291. Figure 4-24 shows the APIs that have replaced and improved on the functionality of the DeepQA architecture. *See* PX001 at PX001.068; *see also* July 28 Trial Tr. at 124:13-125:2 (Rob High testimony) (admitting that Natural Language Classifier, Natural Language Understanding, and Tone Analyzer perform the similar function as DeepQA).

292. IBM's own technical documents indicate that the Additional APIs contain upgrades to DeepQA and its functionality. *See* PX001 at PX001.055-74; *see also* PX119 (Discovery); PX124 (Natural Language Understanding); PX033 at PX033.002 (Retrieve and Rank and Tone Analyzer); PX123 (Retrieve and Rank); PX126 (Retrieve and Rank); PX214 (Retrieve and Rank); PX131 (Watson Explorer); PX118 at PX118.009, PX118.014 (Watson Explorer and Watson

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language processing. PX001 at PX001.009-11; Trial Tr. at 748:5-10 (Eric Brown testimony); July 28 Trial Tr. at 115:5-9 (Rob High testimony).

Knowledge Studio); PX129 (Watson Knowledge Studio); PX117 (Watson Knowledge Studio). Indeed, one of IBM's own patent applications for a technology used in a question answering system indicates: "The Watson™ system is built on IBM's DeepQA™ technology used for hypothesis generation, massive evidence gathering, analysis, and scoring." PX224 at PX224.009; July 30 Trial Tr. at 164:1-17 (Thomas Eggebraaten testimony).

293. There is overlapping functionality between DeepQA and the APIs and these APIs would all be useful in conjunction with DeepQA. July 30 Trial Tr. at 194:10-200:24 (Christian Hicks testimony).

294. IBM did not deliver any of the Additional APIs to Nuance. July 28 Trial Tr. at 112:4-9, 125:6-11 (Rob High testimony); *see also* Schnell Decl. ¶¶ 17, 27, 119; Rhodin Tr. at 149:5-21.

(1) Natural Language Understanding

295. Natural Language Understanding ("NLU") is a combination of three technologies used by IBM to address the problems associated with, and to expand upon, the Question Analysis component of DeepQA. *See* Schnell Decl. ¶ 131; *see also* Deposition of Hui Liao ("Liao Tr.") at 147:19-148:23; July 28 Trial Tr. at 124:1-125:2 (Rob High testimony).

296. IBM has publicly stated that "the question analysis step of the [DeepQA] pipeline is now a set of highly configurable *microservices* [including NLU] that greatly enhance the ability to customize the system for a particular domain." *See* Schnell Decl. ¶ 132; *see also* PX001 at PX001.065, fig. 4-17.

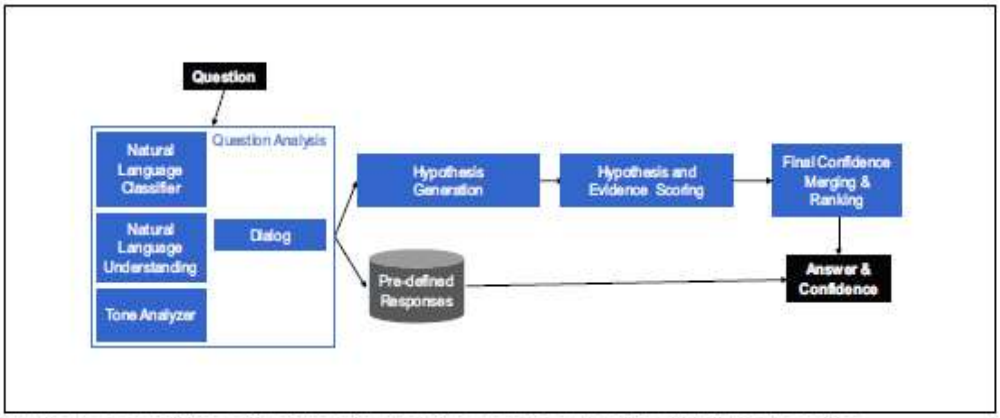

Figure 4-17 Evolution of the DeepQA question analysis step: configurable microservices

297. NLU service's ability to extract entities pertinent to a specific domain would be a useful addition to DeepQA as it would help DeepQA map the intent of a question to provide an appropriate response. *See* Schnell Decl. ¶ 133.

298. NLU improves upon the functionality underlying the DeepQA pipeline. *See* Schnell Decl. ¶ 134.

(2) Tone Analyzer

299. According to IBM, the Watson Tone Analyzer service "uses linguistic analysis to detect three types of tones in text: emotions, social tendencies, and writing style" so that it may "understand emotional context of conversations and communications in order to respond in an appropriate manner." *See* Schnell Decl. ¶ 139; *see also* PX001 at PX001.063.

300. As shown in the graphic above, *supra* ¶ 296, like NLC and NLU, Tone Analyzer improves upon the Question Analysis component of DeepQA. *See* Schnell Decl. ¶ 140; *see also* PX001 at PX001.065, fig. 4-17; July 28 Trial Tr. at 124:1-125:2 (Rob High testimony).

301. Tone Analyzer's ability to ascertain the user's emotional context also would help DeepQA identify the user's intent and provide an appropriate response to a user's query. *See* Schnell Decl. ¶ 141.

302. Tone Analyzer improves upon the functionality underlying the DeepQA pipeline. *See* Schnell Decl. ¶ 142.

(3) Document Conversion

303. Document Conversion is a function developed by the IBM Software Group. July 28 Trial Tr. at 111:2-9 (Rob High testimony). It inputs data, normalizes it and allows it to be broken down into smaller pieces, which may be returned as an answer to a user's query. *See* Schnell Decl. ¶ 122; *see also* Liao Tr. at 25:19-27:6.

304. Document Conversion was developed in order to use Watson in a commercial setting, because it allows commercial clients to ingest their own corpora of information so that it can be accessed in order to respond to the question being asked. *See* July 28 Trial Tr. at 111:14-23 (Rob High testimony). This was not required for the *Jeopardy!* challenge because the documents were pre-ingested. *Id.*

305. In practice, Document Conversion will take a source document and re-organize the document to allow for easier access of information. *See* Schnell Decl. ¶ 123. According to IBM, and as demonstrated in Figure 4-24 above, *supra* ¶ 288, Document Conversion evolved from the DeepQA pipeline and addressed problems with the Hypothesis Generation and Scoring components, which are part of DeepQA, by providing a "scalable mechanism to convert those documents into a shared format and the ability to segment those documents into relevant answer units." *See* Schnell Decl. ¶ 124; *see also* PX001 at PX001.066-68.

306. Document Conversion improves upon the functionality underlying the DeepQA pipeline. *See* Schnell Decl. ¶ 125.

(4) Retrieve and Rank

307. Retrieve and Rank is a question and answer function developed by the IBM Software Group that reviews a vast amount of content and retrieves documents (which could be a

sentence or a word) to answer natural language questions. *See* Schnell Decl. ¶ 135; *see also* Morello Tr. at 36:3-9, 37:11-39:19, 66:10-14; July 28 Trial Tr. at 111:2-9 (Rob High testimony). Rather than just providing answers to questions, Retrieve and Rank enabled the DeepQA architecture to find documents related to the answer. July 28 Trial Tr. at 111:24-112:3 (Rob High testimony).

308. Retrieve and Rank uses scoring to rank potential answer documents based on relevance. *See* Schnell Decl. ¶ 135; *see also* Morello Tr. at 49:22-52:12.

309. IBM has publicly stated that "just like in the DeepQA pipeline, executing primary search and score and rank candidate answers is necessary . . . . Retrieve and Rank [has] a custom query builder optimized for natural language queries, a set of feature scorers to evaluate query/candidate answer overlap, and a machine learning-based ranker that can be trained with questions in the specific domain." *See* Schnell Decl. ¶ 136; *see also* PX001 at PX001.066.

310. In addition to the diagram below (and in Figure 4-24 above, *supra* ¶ 288), in which IBM details the evolution of DeepQA to Retrieve and Rank, an IBM instructional video by a Watson Group employee explains that the Retrieve and Rank service "combines the primary search, answer scoring and ranking stages of the DeepQA pipeline into a convenient, single API pull" and that it uses "specialized information about a corpus or use case to customize the DeepQA pipeline." *See* Schnell Decl. ¶ 137; *see also* PX001 at PX001.067, fig. 4-22 (below); PX214.

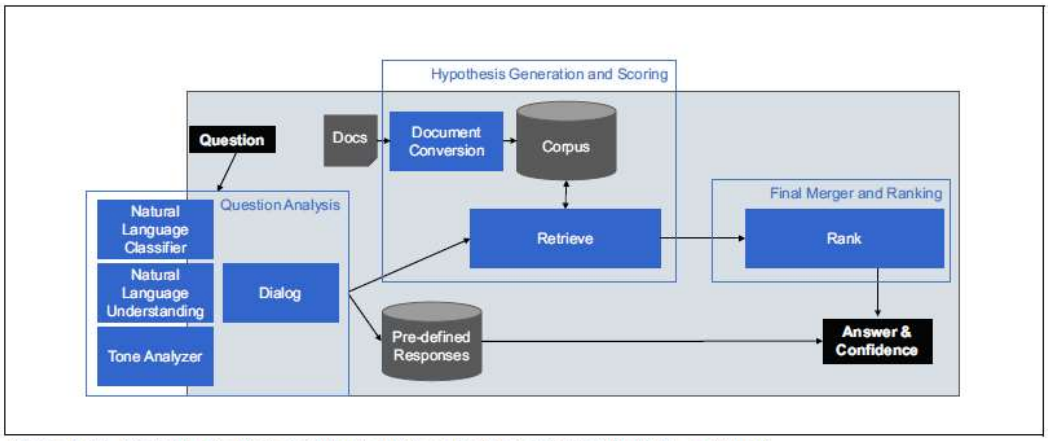

Figure 4-22 DeepQA pipeline; evolution to Watson Developer Cloud: Retrieve and Rank

311. Retrieve and Rank improves upon the functionality underlying the DeepQA pipeline. *See* Schnell Decl. ¶ 138.

(5) Discovery

312. Discovery is a service that "extracts knowledge" from documents "with the intention of creating a knowledge graph," using natural language processing, machine learning, and question analysis technology. *See* Schnell Decl. ¶ 126; *see also* Liao Tr. at 80:18-24, 92:11-23, 93:4-23, 119:18-22.

313. According to IBM, Discovery evolved from the DeepQA pipeline and "provides a pipeline for ingesting, enriching and storing vast amounts of unstructured data. . . . [,] allows you to run queries," and "provides the ability to improve search results by training using documents with prior relevancy labels (relevancy ranking)." *See* Schnell Decl. ¶¶ 127-128; *see also* PX001 at PX001.074 & 094. Discovery replaces Document Conversion and Retrieve and Rank. July 30 Tr. at 198:20-23 (Christian Hicks testimony); Liao Tr. at 65:8-66:3.

314. The Discovery functionality makes it easier to find answers within a corpus of information and also improves the ranking of results. *See* Schnell Decl. ¶ 128. These are improvements to key components of DeepQA, specifically, DeepQA's ability to provide answers

with certain confidence indications. *Id. See also* Liao Tr. at 88:14-16, 89:4-8 (testifying that the passage retrieval component of Watson Discovery was created through a collaboration with IBM Research).

315. The interrelationship between DeepQA and Discovery was outlined by IBM in the diagram below. *See* Schnell Decl. ¶ 129; *see also* PX001 at PX001.074, fig. 4-31.

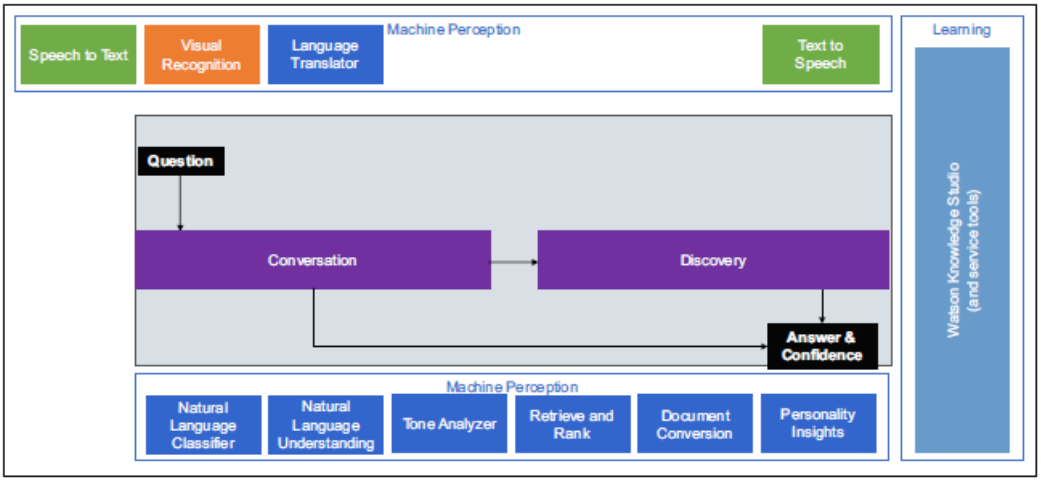

Figure 4-31 DeepQA pipeline, evolution to Watson Developer Cloud: Summary

316. Discovery improves upon the functionality underlying the DeepQA pipeline. *See* Schnell Decl. ¶ 130.

(6) Watson Explorer

317. The Watson Explorer product is an information retrieval system that returns documents in response to a user's natural language query or expression of interest in certain kinds of information. *See* Schnell Decl. ¶ 143; *see also* Liao Tr. at 208:17-22, 210:12-21.

318. IBM has publicly advertised that users can access DeepQA through Watson Explorer. *See* Schnell Decl. ¶ 144; *see also* PX118 at PX118.009, 014.

319. Watson Explorer was based in part on Watson Content Analytics, which IBM advertised as "power[ing] Watson to a *Jeopardy!* win." *See* Schnell Decl. ¶ 145; *see also* PX038.

320. Alfio Gliozzo, one of the architects of DeepQA, assisted the Watson Explorer team in advancements in "natural language query capability," specifically, "how to recognize acronyms." *See* Schnell Decl. ¶ 146; *see also* Liao Tr. at 182:9-183:17; PX135.

321. Watson Explorer improves upon the functionality underlying the DeepQA pipeline. *See* Schnell Decl. ¶ 147.

(7) Watson Knowledge Studio

322. According to IBM, "[t]he primary purpose of Watson Knowledge Studio is to help create a model that understands domain specific linguistic nuances, meanings, and relations," and "provides a rule-based model to find entities in documents" in order to "help Watson become a subject matter expert in a given domain or industry." *See* Schnell Decl. ¶ 148; *see also* PX001 at PX001.096.

323. The functionality of Watson Knowledge Studio would be beneficial to training DeepQA to be used in different domains or industries outside of the *Jeopardy!* context. *See* Schnell Decl. ¶ 149.

324. According to IBM, Watson Knowledge Studio "provides the tools to teach Watson the unique characteristics of your domain" and has "fingerprints" of DeepQA. *See* Schnell Decl. ¶ 150; *see also* PX001 at PX001.074, fig. 4-31 (*see supra* ¶ 315).

325. IBM has also publicly advertised that users can access DeepQA through Watson Knowledge Studio. *See* Schnell Decl. ¶ 151; *see also* PX118 at PX118.009, 014.

326. Watson Knowledge Studio improves upon the functionality underlying the DeepQA pipeline. *See* Schnell Decl. ¶ 153.

G. IBM Has Not Been Forthcoming About Other Products it Has and Continues to Release That Appear to Contain Updates to DeepQA

327. As noted, during discovery, Nuance requested certain source code and SCCS metadata that IBM refused to produce. *See* Schnell Decl. ¶ 181. The Court did not order its production. *Id.* This impacted Nuance's expert's ability to further assess the extent to which IBM developed Updates not provided to Nuance including in i) the "blue-washed" DeepQA code, ii) the NONSLAC source code tree, and iii) SCCS metadata for Document Conversion, Discovery, Natural Language Classifier, Natural Language Understanding, Retrieve and Rank, Watson Explorer and Watson Knowledge Studio. *Id.*

328. IBM also was not forthcoming in responding to Nuance's requests for "all documents and communications regarding Updates to the DeepQA software." *See* Schnell Decl. ¶ 182. For example, although IBM agreed to produce "documents and communications regarding the creation of, division of work for, distribution of work for, progress of, and/or implementation of updates to the DeepQA software," IBM did not produce any documents regarding Watson Discovery Advisor (WDA) until after Nuance expressly identified the product. *See id.*; *see also* PX138 at PX138.002 (noting WDA is a "direct descendant of the Watson *Jeopardy!* system").

329. IBM also expressly refused to answer Nuance's interrogatories focused on identifying any additional IBM products or development work utilizing question answering technology. *See* Schnell Decl. ¶ 183; *see also* PX148 at PX148.008-09. Therefore, Nuance and the Court do not know whether IBM has developed other products that utilize question answer technology and/or have improved DeepQA that have been kept from Nuance. *See* Schnell Decl. ¶ 183.

330. Further, after the close of fact discovery in this matter, IBM introduced at least two new products that appear to be based on DeepQA technology.

331. For example, IBM introduced Project Debater, an AI question answering technology "built on" the Watson *Jeopardy!* foundation. *See* Schnell Decl. ¶ 184; PX144 (Project Debater "is the latest in a long line of major AI innovations at IBM, which also include . . . IBM Watson, which beat the top human champions on *Jeopardy!* in 2011"). According to IBM, "Project Debater . . . absorbs massive and diverse sets of information and perspectives to help people build persuasive arguments." *See* PX144 at PX144.002. IBM Research's Project Debater "expand[s] upon the capabilities of IBM Watson. . .[and] already uses Watson Speech to Text API, and it will contribute to enhancing Watson's advanced language and dialogue features." *Id.* "Project Debater's underlying technologies will also be commercialized in IBM Cloud and IBM Watson in the future." *Id.*

332. IBM also introduced Watson Assistant, which it advertises as being able to "provide a direct answer to a common question or reference more generalized search results for something more complex." *See* Schnell Decl. ¶ 184; PX194. According to IBM, Watson Assistant "directs [customer] requests down the optimal path for solving a customer problem" and by adding skills to Watson Assistant it can "provide a direct answer to a common question or reference more generalized search results for something more complex." *See* PX194 at PX194.001 (noting that Watson Assistant comes with programmable Dialogue and Search Skills to answer user questions). Watson Assistant is trained for a particular entity's business issues by ingesting "pre-existing chat or call logs" so that Watson can "creat[e] more accurate interaction for [] customers." *See* PX145 at PX145.002. An additional search skill, "powered by Watson Discovery," can search company documents to "provide the best possible answer to a user's question." *Id. See also* PX194 at PX194.003 (describing how Watson Discovery is used in combination with Watson Assistant to "mine [] existing data collections for source material"). When a user poses an ambiguous question

Watson Assistant "shares a list of top options, and asks the user to pick the right one." *See* PX145 at PX145.003. IBM described Watson Assistant in its product announcement as being able to "help[] answer customer questions quickly and accurately." *Id.* at PX145.002.

333. Additionally, IBM's Thomas Eggebraaten identified several other IBM products and offerings that utilize IBM Software Group's version of the DeepQA code and domain independent components of that code including text parsing and text matching components. July 28 Trial Tr. at 153:16-159:2 (Thomas Eggebraaten testimony). These include Cancer Guidelines Navigator, Clinical Trials Matching Annotator for Clinical Data, Insight for Medical Literature and the Preauthorization offering. *Id.*

334. IBM has applied for a patent for a natural language processing technology similar to what is used in the Preauthorization offering that can be used generally for question answering technology. PX229; July 28 Trial Tr. at 173:6-174:10 (Thomas Eggebraaten testimony).

335. IBM did not provide any documents or testimony in this matter pertaining to their development of Project Debater, Watson Assistant, Cancer Guidelines Navigator, Clinical Trials Matching Annotator for Clinical Data, Insight for Medical Literature or the Preauthorization offering. *See* July 30 Trial Tr. at 123:12-23 (Ronald Schnell testimony).

336. Project Debater, Watson Assistant, Cancer Guidelines Navigator, Clinical Trials Matching Annotator for Clinical Data, Insight for Medical Literature or the Preauthorization offering, and other products that appear to contain Updates were not provided to Nuance under the SLA. *See* July 30 Trial Tr. at 123:12-23 (Ronald Schnell testimony); July 28 Trial Tr. at 154:12-14, 156:20-22, 157:14-16, 158:7-9, 158:21-23 (Thomas Eggebraaten testimony).

337. IBM has also released numerous products that appear to be based on question answer functionality in the past two years, including ESPN Fantasy Insights With Watson, Watson

Candidate Assistant, Watson Career Coach and Watson Talent Frameworks, that were not provided to Nuance. *See* Joe Lemire, *ESPN Fantasy Football Features AI Insights from IBM Watson*, ESPN (Sept. 10, 2018), https://www.sporttechie. com/espn-fantasy-football-features-ai-insights-from-ibm-watson/ (documenting release of ESPN Fantasy Insights With Watson); *IBM Watson Talent Frameworks and IBM Watson Talent Frameworks Publisher Can Help You Get Started With Cognitive Talent Management* (June 5, 2018), https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=897/ENUS218-196&infotype=AN&subtype=CA (documenting release of Watson Candidate Assistant, Watson Career Coach and Watson Talent Frameworks).

VIII. Nuance Was Unable to Commercialize DeepQA

338. Despite IBM's promises, representations, and commitments during the SLA negotiations, and in the SLA it signed, IBM delivered only limited, low value updates to Nuance. Ricci Decl. ¶ 31; *see also* Petro Decl. ¶ 22.

339. Nuance knew it would need assistance from IBM on commercializing DeepQA, which is one of the reasons why Nuance was so focused on the terms of the Updates Provision. Trial Tr. at 44:25-45:14 (Joseph Petro testimony).

340. Without the benefit of the promised Updates, and although Nuance invested a significant amount of money into its internal DeepQA program, Nuance was unable to commercialize the code. Ricci Decl. ¶ 32; Petro Decl. ¶ 24.

341. Examples of Nuance's investment in DeepQA included assigning 30 full-time employees to the project, hiring consultants, and assigning its best natural language processing expert to Nuance's DeepQA team. Trial Tr. at 86:19-87:7, 90:6-17, 101:9-15 (Joseph Petro testimony).

342. However, due to IBM's failure to deliver the promised Updates, Nuance realized no benefit from or return on its $25 million investment in DeepQA. Ricci Decl. ¶ 33; Petro Decl. ¶ 24.

343. The harm to Nuance is much greater than $25 million, however. Ricci Decl. ¶ 34. In 2010, Nuance recognized the need to pursue the next generation of technology that would be relevant to its healthcare business. *Id.* Nuance invested in the DeepQA platform as a means to access this technology, relying on IBM's promises about DeepQA and Nuance's ability to benefit from IBM's work on the code. *Id*. But IBM reneged on its promises and blocked Nuance from following the evolution of DeepQA, which cost Nuance its competitive advantage in the market and the ability to monetize its investment. *Id.*; *see also* Trial Tr. at 578:25-579:16 (Paul Ricci testimony).

IX. If Nuance Received DeepQA Updates, Nuance Believes It Could Commercialize DeepQA

344. Nuance believes it will be able to develop and commercialize products if it is provided with the DeepQA Updates. Petro Decl. ¶ 25.

345. This is in part because Nuance has already brought most of the use cases it envisioned using with DeepQA to market over time. Trial Tr. at 48:19-49:1 (Joseph Petro testimony). Nuance could "use a lot of what is existing and we can also put new technology in it and we could come up with a compelling case to market around it and to sell it." *Id.* at 119:13-120:3.

346. Nuance also will be able to sublicense the DeepQA source code if Nuance receives the DeepQA Updates since then the source code would be useable. Petro Decl. ¶ 25; Trial Tr. at 119:8-12 (Joseph Petro testimony); JX001 at JX001.2 ("The foregoing license includes the right for Nuance to sublicense the Source Code of the Licensed IBM Background Software . . .").

X. IBM's Witnesses Lack Credibility

347. At numerous points during the trial, IBM witnesses admitted that they gave contradictory testimony in their deposition to their trial testimony or admitted that the facts did not support their testimony in their written declarations. *See infra* ¶¶ 348-51.

348. **David McQueeney**:

(1) IBM's Chief Information Officer, David McQueeney, stated in his written declaration that at a September 2011 "5x5" meeting between IBM and Nuance, "Manoj Saxena, an SWG executive explicitly reiterated IBM's [view] that Nuance was not entitled to any Modifications developed by SWG." McQueeney Decl. ¶ 17.

(2) However, on cross-examination, Mr. McQueeney admitted there is no mention of that statement by Mr. Saxena in Mr. McQueeney's contemporaneous September 17, 2011 email recounting the "5x5" meeting to Dr. Ferrucci. JX018; Trial Tr. at 289:7-14 (David McQueeney testimony).

(3) Mr. McQueeney also stated in his written declaration that, based on a remark Nuance's Jeanne McCann made in July or August 2011, that "[t]his remark clearly indicated to me that Ms. McCann understood that Nuance was only entitled to the DeepQA work done by IBM Research and had no rights to the DeepQA work done by SWG." McQueeney Decl. ¶ 13; Trial Tr. at 295:17-25 (David McQueeney).

(4) However, on cross-examination, Mr. McQueeney admitted that IBM's Kenneth King told him several month later, in November 2011, that Ms. McCann stated that Nuance expected all DeepQA Updates, even those created by IBM Software Group. Trial Tr. at 298:2-24 (David McQueeney); DX-39. Mr. McQueeney also has no recollection of reaching out to Ms. McCann after the November 2011 email to clarify the scope of IBM's obligations. Trial Tr. at 299:14-16 (David McQueeney).

349. **William LaFontaine**:

(1) IBM's William LaFontaine noted in his written declaration that he "had long understood that IBM had walled off IBM Research from SWG's work on DeepQA" and that he "further understood that Nuance was aware of this fact, and the fact that it was not receiving any of SWG's work on DeepQA." LaFontaine Decl. ¶ 8.

(2) However, on cross-examination, Mr. LaFontaine admitted that he had no personal knowledge to support these statements and that he did not have

any discussions with anyone at Nuance about whether Nuance has or believed it was receiving any of IBM Software Group's work on DeepQA. Trial Tr. at 420:18-421:4, 421:8-20, 431:7-25 (William LaFontaine testimony).

(3) Mr. LaFontaine also testified in his written declaration that he "had no need or reason to tell Ms. McCann that IBM would not provide SWG's Watson code to Nuance; as far as [he] knew, that was an established fact long known to Ms. McCann." LaFontaine Decl. ¶ 8.

(4) However, on cross-examination, Mr. LaFontaine admitted that he just assumed Nuance knew it was not receiving DeepQA work from IBM Software Group and that he had no way of knowing whether Nuance was aware that it was not receiving IBM Software Group's work on DeepQA. Trial Tr. at 432:12-28 (William LaFontaine testimony).

350. **Kenneth King:**

(1) IBM's Kenneth King claimed in his written declaration that the Nuance personnel he dealt with "were familiar with IBM's structure and clearly understood that (i) IBM Research and the IBM Software Group ("SWG") were separate entities; and (ii) when IBM Research negotiated a licensing or development deal with Nuance, the resulting agreement did not involve or impose obligations on SWG unless specifically provided for in the agreement or in a separate agreement." King Decl. ¶ 5.

(2) However, on cross-examination, Mr. King admitted he cannot point to any statements, documents or facts to support that assertion. Trial Tr. at 597:2-16, 659:22-660:9 (Kenneth King testimony).[6]

(3) Mr. King also claimed in his written declaration that the RTTS Agreement licensed software components "owned by SWG" and that Nuance entered into "a separate software license agreement with SWG's middleware unit to obtain rights in the SWG-owned components that RTTS utilized." King Decl. ¶ 6.

(4) However, on cross-examination, Mr. King admitted that the RTTS "separate software license agreement," DX-48, was actually with IBM and that IBM Corporation owns the components that were licensed in that agreement. Trial Tr. at 606:18-607:22 (Kenneth King testimony); *see also id.* at 231:13-232:7 (Helgi Bloom testimony) (testifying that IBM Corporation was the signatory to DX-48 and the entity that granted Nuance a license under that agreement).

[6] And, of course, the SLA signed by IBM specifically requires Updates to be provided by IBM. JX001 at JX001.253-54.

(5) Mr. King's testimony regarding alleged conversations between himself and others at IBM and Nuance between 2011-2013 also lacked credibility. In his written declaration, Mr. King testified that "during the period from at least 2011 through 2013, I and others at IBM repeatedly made clear to Jeanne McCann, Paul Ricci and others at Nuance that SWG was not sharing the work it did to commercialize DeepQA with IBM Research precisely so that such work would not be provided to Nuance." King Decl. ¶ 22.

(6) However, when presented on cross-examination with a November 2011 email indicating that Nuance thought it was entitled to all DeepQA Updates, not just those from IBM Research, Mr. King admitted that he did not remember having any conversations with Jeanne McCann regarding Nuance only being entitled to Updates from IBM Research or IBM's obligations under the DeepQA SLA after November 2011 and that he was not aware of anyone else at IBM having such discussions with Ms. McCann. Trial Tr. at 624:10-22 (Kenneth King testimony) (Q. And you don't remember having any discussions with Ms. McCann after this November 2011 date to say that the DeepQA code updates were Research only, right? A. Correct. Q. And you're not aware of anyone else at IBM having such discussions with Ms. McCann after the November 2011 e-mail, right? A. Is that November – yeah. Correct, I don't remember any following discussions with her on that. Q. And you don't remember having any discussions with Ms. McCann at all after November 2011 regarding IBM's obligations under the DeepQA SLA, right? A. Correct."); DX-12; *see also* Trial Tr. at 625:14-23 (Kenneth King testimony) ("Q. You don't remember if anyone at IBM told Nuance after this November 2011 e-mail chain that, no, you're only entitled to DeepQA updates from IBM Research, correct? A. Correct. Q. And you're not aware of any correspondence or conversations between yourself and anyone at Nuance after this November 2011 e-mail chain that IBM's position was that it was only required to provide DeepQA updates from IBM Research, right? A. I don't remember that, correct.").

(7) Mr. King further admitted that, as of September 2017, he was not even aware that there was a separate DeepQA code base for IBM Software Group and that he therefore could not have told anyone at Nuance that a separate Software Group DeepQA code base existed prior to 2017. Trial Tr. at 628:19-629:7 (Kenneth King testimony).

351. **John Kelly:**

(1) IBM's Dr. John Kelly repeatedly disputed or was unable to recall statements recorded in contemporaneous documents that are favorable to Nuance. *See* July 28 Trial Tr. at 27:16-28:11, 31:8-32:8, 32:15-33:19, 37:24-38:9 (John Kelly testimony). He also repeatedly contradicted his prior sworn deposition testimony. *Id.* at 22:25-24:12, 40:21-41:19.

(2) For example, PX007 contains an email that Paul Ricci wrote to his team on September 12, 2010, before the SLA was signed, reporting contemporaneously on a conversation he had with IBM's John Kelly in which Dr. Kelly brought up the possibility of adapting the DeepQA technology to the medical field. PX007 at PX007.003. At trial, Dr. Kelly claimed to not recall this conversation with Mr. Ricci. *See* July 28 Trial Tr. at 31:8-32:8 (John Kelly testimony).

(3) Similarly, PX007 also contains a June 16, 2010 *New York Times* article that quotes John Kelly as saying, "I want to create a medical version of this. . . . A Watson M.D., if you will." *See* PX007 at PX007.075-76. When confronted with this document at trial, Kelly testified that he was referring to Watson as the IBM "brand name for the whole field of artificial intelligence." July 28 Trial Tr. at 32:15-33:19 (John Kelly testimony). However, as the record established, this was simply untrue as IBM did not begin using Watson as a brand moniker until January 2013 and "Watson" circa 2010 referred only to DeepQA. *See* Trial Tr. at 345:18-346:2 (Kevin Reardon testimony).

(4) Dr. Kelly similarly tried to contradict contemporaneous notes from his eleventh-hour visit to Nuance in advance of Nuance signing the SLA. *See* July 28 Trial Tr. at 36:13-17 (John Kelly testimony). PX024 is an email dated September 30, 2010, the day the SLA was signed, from Paul Ricci to the Nuance board, reporting contemporaneously on a meeting between Mr. Ricci and Dr. Kelly. *See* PX024.001. Mr. Ricci wrote to his board that during the meeting, Dr. Kelly "made very strong commitments concerning resource dedication and rapid focus on achieving a demonstrable product in healthcare." *Id.* At trial, Dr. Kelly testified, contrary to the record evidence of IBM's repeated representations about its intended investment in DeepQA, *infra* ¶¶ 26-54, that his discussion with Paul Ricci "wasn't a discussion around the DeepQA code" and that he "didn't" make strong commitments to invest in DeepQA because "[IBM] had no such plans." *See* July 28 Trial Tr. at 27:16-28:11, 37:24-38:9 (John Kelly testimony).

(5) Dr. Kelly even denied a conversation with IBM's own Kevin Reardon – again reported in a contemporaneous document – where he told Mr. Reardon that he made a firm commitment to Paul Ricci to invest heavily in DeepQA in healthcare. July 28 Trial Tr. at 38:10-39:21 (John Kelly testimony); DX-56 (Ms. McCann writing "John Kelly repeated to Kevin his firm commitment to you that he would invest heavily in DeepQA in Healthcare (and beyond DeepQA in Healthcare)."

(6) Unlike these unhelpful meetings memorialized in contemporaneous documents, Dr. Kelly claimed that he recalled a dinner meeting where he allegedly told Paul Ricci that he had moved personnel from IBM Research to the Watson Group (which Mr. Ricci denies, Trial Tr. at 558:5-559:5 (Paul Ricci testimony)). However, there are no documents anywhere in

this case that support Dr. Kelly's claim. *See* July 28 Trial Tr. at 56:15-57:4 (John Kelly testimony). Further, Dr. Kelly's testimony regarding the alleged discussion at this dinner is not credible as it is based on an alleged express SLA provision that he contends allows IBM to "move people across the border" between IBM Research and IBM Software Group. July 28 Trial Tr. at 87:7-88:19 (John Kelly testimony). No such provision exists. *See generally* JX001.

PROPOSED CONCLUSIONS OF LAW

I. The Contract Requires DeepQA Updates from All of IBM

A. Legal Standards

352. The SLA is governed by New York law. Stipulated Fact 6; JX001 at JX001.19.

353. Under the SLA, IBM is required to provide Updates to Nuance for 10 years, or until September 30, 2020. *See* JX001 at JX001.253-54.

354. The SLA was entered into by IBM, not IBM Research. JX001 at JX001.001 and JX001.020.

355. Section 1.2 states that "[t]he Licensed IBM Background Software is owned by IBM." JX001 at JX001.001. Section 2.1 of the SLA states that the license grant to Nuance is also by IBM. *Id.* at JX001.002.

356. The agreed-upon definition of "Licensed IBM Background Software" in the SLA provides:

> 'Licensed IBM Background Software' means (a) all Software that exists as of the Effective Date in all available formats (including Source Code and Object Code) that is owned by, or that has been developed or licensed by the IBM Research Group, including Tools, and that is listed on Exhibit A, ***including any modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools, that are JDBC compliant, and other changes, if available ('Modifications')***, and if such Modifications are not contractually prohibited under a Third Party Agreement, and such Modifications are available, will be timely provided to Nuance; and where the Modifications continue to meet the scope contemplated in Article 2.1 regarding the licensing of Deep QA under this Agreement, as of the Effective Date and thereafter ***for a period of ten (10) years, and additional Software as agreed by the parties, provided to Nuance by IBM under the Agreement (collectively 'Updates')***; and (b) all Software Materials for

> such Software. For clarity, as of the Effective Date the 'Licensed IBM Background Software' excludes Third Party Code listed in Exhibit B.

Id. at JX001.253-54 (emphasis added).

357. The SLA also expressly provides: "As used in this Agreement, **all references to 'IBM' mean IBM Corporation**, unless otherwise expressly limited to a division or group of IBM Corporation herein." *Id.* at JX001.019 (emphasis added).

358. Other provisions in the SLA further reflect the parties' intention that IBM is obligated to deliver any and all Updates to Nuance, including those developed outside IBM Research Group. For example, Section 2.4 of the SLA states: If ***IBM*** provides . . . any modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools and other changes to the Licensed IBM Background Software, ***IBM*** will update Exhibit B [to the SLA] to include any additions or subtractions to the Open Source Software or the Third Party Code. JX001 at JX001.003.

359. Courts "give effect to the intent of the parties as expressed in the clear language of the contract." *Two Farms, Inc. v. Greenwich Ins. Co.*, 628 F. App'x 802, 804 (2d Cir. 2015); *see also Greenfield v. Philles Records, Inc.*, 780 N.E.2d 166, 170 (N.Y. 2002) ("The best evidence of what parties to a written agreement intend is what they say in their writing.").

360. New York Courts also caution against interpretations of a contract "that would render any individual provision superfluous." *RJE Corp. v. Northville Indus. Corp.*, 329 F.3d 310, 314 (2d Cir. 2003); *see also Paneccasio v. Unisource Worldwide, Inc.*, 532 F.3d 101, 111 (2d Cir. 2008) ("The rules of contract construction require us to adopt an interpretation which gives meaning to every provision of the contract."); *LaSalle Bank Nat. Ass'n v. Nomura Asset Capital Corp.*, 424 F.3d 195, 206 (2d Cir. 2005) ("[A]n interpretation of a contract that has the effect of

rendering at least one clause superfluous or meaningless . . . is not preferred and will be avoided if possible.") (alterations in original) (internal quotations omitted).

361. "[A] word used by the parties in one sense will be given the same meaning throughout the contract in the absence of countervailing reasons." *Two Farms*, 628 F. App'x at 805.

362. The parties, represented by counsel, agreed to define IBM as "IBM Corporation." Any conclusion that allows the term IBM to be construed as only IBM Research Group would thus make the IBM definition and other clauses such as Section 2.4 superfluous.

363. Therefore, interpreting the SLA under New York law, the relevant language of the SLA, including the Updates Provision, clearly defines Updates as coming from "IBM" and not a specific division or group of IBM Corporation. Nuance's interpretation of the SLA is correct as a matter of law.

B. The Extrinsic Evidence Shows that the Parties Intended to Grant Nuance A License to All DeepQA Updates from All of IBM, Including New Components and Code

364. In its March 28, 2019 Order on the parties' cross motions for summary judgment, the Court held that the Updates Provision is ambiguous as a matter of law. *See Nuance Commc'ns, Inc. v. Int'l Bus. Machines Corp.*, No 16-CV-5173(-KMK), 2019 WL 2006180, at *11 (S.D.N.Y. May 7, 2019). Accordingly, the Court, as trier of fact, may consider extrinsic evidence. *Id.* at *9 (citing *McCostis v. Home Ins. Co. of Ind.*, 31 F.3d 110, 113 (2d Cir. 1994)).

365. "Extrinsic evidence may include the acts and circumstances surrounding execution of the ambiguous term, conversations, negotiations[,] and agreements made prior to or contemporaneous with the execution of a written agreement, and the parties' course of conduct throughout the life of the contract." *Id.* (citing *GE Funding Cap. Mkt Servs., Inc. v. Neb. Inv. Fin.*

Auth., No. 15-CV-1069, 2017 WL 2880555, at *4 (S.D.N.Y. July 6, 2017)) (alterations in original) (quotation marks omitted).

366. The extrinsic evidence here, including the representations IBM made to Nuance before executing the SLA, the negotiations surrounding the execution of the Updates Provision, and the parties' course of conduct in the years that followed the SLA, show that the parties intended to grant Nuance a license to all the work IBM planned to do to evolve and improve DeepQA and its functionality created anywhere within IBM, including new components and code. *See supra* Pl.'s Supplemental Proposed Findings of Fact ("FOF") ¶¶ 9-18, 26-89.

367. *First*, before executing the SLA, IBM's consistent message to Nuance was that IBM would evolve the DeepQA platform "Above and Beyond *Jeopardy!*," PX007 at PX007.041, and that, if Nuance "plug[ged] into this channel," it would "change the game for [their] business." PX002 at PX002.004; *see also* FOF ¶¶ 9-18. This message was central to IBM's presentation when it introduced DeepQA to Nuance at a "healthcare day" in June 2010, and this message persisted throughout the parties' discussions about licensing DeepQA. *See* FOF ¶¶ 9-18, 30-35, 38-54.

368. Indeed, in each presentation IBM gave to Nuance about DeepQA, IBM outlined their plan to "[e]volve the [DeepQA] architecture," *see* FOF ¶ 39; PX011 at PX011.093, so that the technology could be used in applications outside of *Jeopardy!* and across the mobile, consumer, retail, transportation, and, especially, the healthcare/medical space. FOF ¶ 17; McCann Tr. at 53:8-53:20, 58:21-60:6, 95:8-96:13, 108:10-109:3 ("IBM presented…about potential uses in more business domains, one of which was healthcare"). IBM's plan included both near-term projects and a long-term vision to create a "common architecture and platform for intelligent [question and answer] systems" with "an extensible general purpose capability." PX007 at

PX007.041 and PX007.055. IBM was emphatic about their commitment to carry out these goals. *See* FOF ¶¶ 15-18.

369. In their responses to Nuance's diligence questions, IBM acknowledged the significant work it would take to realize their vision for DeepQA. *See e.g.*, PX016 at PX016.004 ("[a]ddressing new domains . . . follows a process we have just begun to rough out."). IBM repeatedly conveyed, however, that they were committed to the DeepQA program, and that IBM Research Group and other IBM divisions would work together in "[e]xtreme [c]ollaboration" to improve the technology. *See* FOF ¶¶ 32-34; PX007 at PX007.046; *see also* McCann Tr. at 58:21-62:3, 95:8-97:7; Bloom Decl. ¶ 16; Ricci Decl. ¶¶ 17, 21; Petro Decl. ¶ 16. And IBM represented to Nuance that all the work IBM was planning to do to evolve and improve the technology would flow into a common, universal core and then on to Nuance if Nuance invested in DeepQA. *See* FOF ¶¶ 31-33; McCann Tr. at 95:8-97:7; PX008. This was the entire premise on which Nuance entered into the SLA. FOF ¶¶ 35-37, 57.

370. *Second*, during the SLA negotiations, Nuance insisted on Updates from all of IBM. FOF ¶ 79; *see also* Bloom Decl. ¶ 22. At the time, although the IBM Research Group managed DeepQA exclusively, not even IBM knew which divisions or groups would ultimately work on the code. *See* FOF ¶ 101. Further, as noted, IBM was encouraging "[e]xtreme [c]ollaboration" on the DeepQA project, PX007 at PX007.046, so the parties expected that Updates would flow to the DeepQA core from developers throughout IBM. Thus, when IBM's first draft of the SLA did not include Updates, Nuance demanded "the same updates/upgrades delivery obligations as in the RTTS agreement," which required IBM to deliver all Updates throughout IBM. FOF ¶¶ 60-61; McCann Tr. at 129:16-131:3; Bloom Decl. ¶ 22; Petro Decl. ¶ 17. Based on these demands, the parties revised the SLA to include an updates provision that required Updates from all of IBM.

FOF ¶¶ 62-66; *see also* Bloom Decl. ¶ 24 ("[W]e specifically used the term 'IBM' in describing who had the update obligation . . . . I do remember it being our shared understanding with the IBM negotiating team . . . that the Update obligation was an IBM obligation, not limited to IBM Research."). The parties further reinforced the requirement that IBM provide Nuance all Updates developed anywhere within IBM when, after adding the Update clause to the SLA, they further amended Section 2.4. of the SLA to add the following:

> If IBM provides [] any modifications, updates, upgrades, error corrections, bug fixes, diagnostic and/or testing tools and other changes to the Licensed IBM Background Software, IBM will update Exhibit B to include any additions or subtractions to the Open Source Software or the Third Party Code.

JX001 at JX001.3. This was tied directly to the Updates clause. *See* Trial Tr. at 391:20-392:15 (Kevin Reardon testimony).

371. *Third*, Nuance specifically negotiated for an Updates Provision that would cover "new components or modules for the core [DeepQA] system," FOF ¶ 66; *see also* PX019 at PX019.002, which is inconsistent with IBM's position that it was only required to deliver Updates to files specifically listed in Exhibit A of the SLA. IBM's position is also not technically sound, defies source code development best practices, *see* FOF ¶¶ 86, 104; *see also* Schnell Decl. ¶¶ 156, 160; PX154 ¶¶ 6-7 & 18-20 (incorporated by reference in Schnell Decl. ¶ 156), and is contrary to IBM's own understanding of the SLA, which requires IBM to provide Updates if they "were improvements of the existing functions that existed in the system at the time of the SLA," Trial Tr. at 683:2-683:8 (Eric Brown testimony); *see also* Sejnoha Tr. at 31:4-9; FOF ¶¶ 110-112.

372. *Finally*, the parties' conduct after they executed the SLA is telling. Less than a year after the September 30, 2010 execution date, with Watson's victory on *Jeopardy!* as the primary intervening event, IBM sent Nuance a Proposed Amendment. *See* Stipulated Fact 4. The Proposed Amendment, which Nuance rejected, *see* Stipulated Fact 5, sought to replace the definition of

"Licensed IBM Background Software" with a new definition, which would limit Nuance to only those Updates developed by IBM Research Group. *See* FOF ¶¶ 167-176; JX017. IBM's belated attempt to re-trade on its obligations also demonstrates that Nuance is not limited to Updates from IBM Research Group, because, if Nuance was already so limited, the amendment would have been unnecessary.[7]

373. Taken together, the extrinsic evidence resolves any ambiguity in the definition of Licensed IBM Background Software in Nuance's favor. Accordingly, Nuance is entitled to all Updates to DeepQA and all upgrades to DeepQA functionality developed throughout IBM, including new components and code. This includes the DomainIndependent_comp component, the blue-washed DeepQA code, Watson Discovery Advisor, Watson Engagement Advisor, Watson for Oncology, Natural Language Classifier, and the Additional APIs. *See* FOF ¶¶ 139, 179-180, 224-282, 292-326.

XI. IBM Breached the SLA

A. Legal Standards

374. Under New York law, the elements of a claim for breach of contract are "the existence of a contract, the plaintiff's performance under the contract, the defendant's breach, and resulting damages." *Hampshire Props. v. BTA Bldg. & Developing, Inc.*, 122 A.D.3d 573, 573 (N.Y. App. Div. 2d Dep't 2014).

375. Under New York law, where a party unilaterally breaches an obligation to perform within a period of time under a contract, a court may extend the time to perform for the length of time that the offending party was in violation of the contract. *See New York Real Estate Inst., Inc.*

[7] IBM's proposed interpretation, that Updates were only required from IBM Research, is also belied by the fact that IBM agreed to and in fact provided Updates to components that it alleges were developed by IBM Software Group. *See* FOF ¶¶ 107-108.

v. Edelman, 42 A.D.3d 321, 322 (N.Y. App. Div. 1st Dep't. 2007); *see also Marsh USA Inc. v. Karasaki*, 2008 WL 4778239 at *21 (S.D.N.Y. Oct. 31, 2008) (holding that as defendant was in "flagrant breach" of an agreement the court would "enforce[e] the entire one-year agreement . . . beginning from the date that an Order issuing the preliminary injunction is filed").

376. Under New York law specific performance "will be ordered when [money] damages would not be an 'adequate remedy' for the non-breaching party, as in cases in which damages will be difficult to prove with certainty, damages would not allow the procurement of substitute performance, or the contract involves unique goods or services." *See Versatile Housewares & Gardening Sys., Inc. v. Thill Logistics, Inc.*, 819 F. Supp. 2d 230, 241 (S.D.N.Y. 2011).

377. A court may appoint a special master to address post trial matters that "cannot be effectively and timely addressed by an available district judge or magistrate judge of the district." Fed. R. Civ. P. 53; *see also C.D.S., Inc. v. Bradley Zetler, CDS, LLC*, 190 F. Supp. 3d 375, 378 (S.D.N.Y. 2016), *aff'd*, 691 F. App'x 33 (2d Cir. 2017) (appointing a special master to "serve on a fair and evenhanded basis to provide expert assistance in facilitating agreement on technical and operational issues, monitor compliance with the preliminary injunctive relief ordered by the court and reflected in the parties' operational agreement, and to advise the court on the technical questions in dispute in this case"). Additionally, a court using its longstanding inherent powers may appoint a master "to assist in framing and enforcing complex decrees." *United States v. Apple, Inc.*, 992 F. Supp. 2d 263, 281 (S.D.N.Y. 2014) (citing Fed. R. Civ. P. 53(a)(1)C) advisory committee notes (2003 amendments)). A court has "broad discretion" to appoint a master to administer a judgment where consensual methods of implementation of an order are unreliable. *United States v. Yonkers Bd. of Educ.*, 29 F.3d 40, 44 (2d. Cir. 1994) (per curiam); *see also Strauch*

v. Computer Sci. Corp., 2019 WL 7602150 at *1 (D. Conn. August 6, 2019) (appointing a post-trial special master to oversee "damages data retrieval [and] exchange" and providing the master with the power to resolve disputes over within master's authority as defined in the court's order and Fed. R. Civ. P. 53).

378. In its March 28, 2019 Order on the parties' cross motions for summary judgment, the Court dismissed Nuance's breach of implied covenant of good faith and fair dealing claim as duplicative of its breach of contract claim because "[b]oth claims are premised on the same set of facts. Both claims refer to IBM's alleged violations of its obligations under the contract. And both claims seek the same remedy." *Nuance Commc'ns*, 2019 WL 2006180, at *15. As the Court noted, however, "[IBM] can breach the contract by acting in bad faith." Trial Tr. at 278:6-24; *see also Affordable Hous. Assoc., Inc. v. Town of Brookhaven*, 13 N.Y.S.3d 876, 880 n.2 (N.Y. Sup. Ct. 2015) ("The court dismissed as duplicative the second cause of action against the Town for breach of the implied covenant of good faith and fair dealing, which was based on the same facts and sought the same measure of damages as the first cause of action for breach of contract. Accordingly, the plaintiff's claim for breach of the covenant of good faith and fair dealing is included in the first cause of action for breach of contract against the Town.").

379. Under New York law, parties to an express contract are bound by an implied duty of good faith and fair dealing in the course of the contract performance. *Dalton v. Educ. Testing Serv.*, 663 N.E.2d 289, 290-91 (N.Y. 1995).

380. Breach of the duty of good faith and fair dealing is a breach of the underlying contract. *See Harris v. Provident Life & Acc. Ins. Co.*, 310 F.3d 73, 80 (2d Cir. 2002) (citing *Fasolino Foods Co. v. Banca Nazionale del Lavoro*, 961 F.2d 1052, 1056 (2d Cir.1992)); *see also*

Fischoff v. Coty, Inc., 634 F.3d 647, 653 (2d Cir. 2011) ("A breach of the duty of good faith and fair dealing is considered a breach of contract.").

381. A party breaches the duty of good faith and fair dealing by acting to "deprive the plaintiff of his rights under the agreement" or by acting in a manner that would "justify an inference of bad faith." *Stevens v. Publicis, S.A.*, 50 A.D. 3d 253, 256 (N.Y. App. Div. 1st Dep't 2008) (citing *Pernet v. Peabody Eng'g Corp.*, 20 A.D. 2d 781, 782 (N.Y. App. Div. 1st Dep't 1964) ("[w]hether the acts of the defendant here were in such bad faith . . . as to constitute a breach of [the] implied covenant will depend upon the facts which may be presented to the court")). Bad faith conduct includes "evasion of the spirit of the bargain, lack of diligence and slacking off, willful rendering of imperfect performance, abuse of a power to specify terms, and interference with or failure to cooperate in the other party's performance." *Id.* (citing Restatement [Second] of Contracts § 205, Comment d).

382. The implied obligation to perform a contract in good faith encompasses the performance of "any promises which a reasonable person in the position of the promisee would be justified in understanding were included." *Rowe v. Great Atl. & Pac. Tea Co., Inc.*, 385 N.E.2d 566, 569 (N.Y. 1978) (quoting 5 Williston, Contracts (rev. ed., 1937), § 1293, p. 3682); *see also Galvstar Holdings, LLC v. Harvard Steel Sales, LLC,* 722 F. App'x 12, 16 (2d Cir. 2018) (holding that courts will enforce "an implied promise [that] was so interwoven in the whole writing of a contract as to be necessary for effectuation of the purposes of the contract"). It also encompasses the obligation that "neither party shall do anything which will have the effect of destroying or injuring the right of the other party to receive the fruits of the contract." *Kirke La Shelle Co. v. Paul Armstrong Co.*, 188 N.E. 163, 167 (N.Y. 1933); *see also Fischoff*, 634 F.3d at 653.

383. Where a party's actions during the course of performance of a contract "so directly destroy the value of the contract for another party that the acts may be presumed to be contrary to the intention of the parties, the implied covenant of good faith may be implicated." *M/A–COM Sec. Corp. v. Galesi*, 904 F.2d 134, 136 (2d Cir. 1990); *see also Spinelli v. Nat'l Football League*, 903 F.3d 185, 205 (2d Cir. 2018) (reversing dismissal of plaintiff's claims where the defendant acted in a manner that benefited itself but "yield[ed] little to no value for [plaintiff]").

B. IBM Breached the SLA When it Acted in Bad Faith and Also Failed to Deliver All Updates to DeepQA

384. Nuance and IBM have a valid and binding contract. *See* Stipulated Fact 1.

385. Nuance performed under the contract when it paid IBM $25 million. *See* FOF ¶ 92.

386. Dissatisfied with the deal that it negotiated, IBM acted unilaterally and in bad faith to deprive Nuance of the benefit of its bargain. FOF ¶¶ 117-199.

387. IBM acted in bad faith by intentionally "forking" the DeepQA code in order to prevent Updates and other improvements to DeepQA functionality made outside of the IBM Research Group from being provided to Nuance. FOF ¶¶ 117-142. IBM also acted in bad faith when it split the IBM Research Group version of the DeepQA code into two source code components and withheld certain components from Nuance. FOF ¶¶ 177-199.

388. IBM further acted in bad faith by intentionally "firewalling" the IBM Research Group employees from the rest of IBM, as well as transferring DeepQA-knowledgeable IBM Research Group employees to other IBM divisions. FOF ¶¶ 143-158. The firewall was admittedly created to keep Nuance from benefitting from IBM's continued work on DeepQA and its associated functionality. *Id.*

389. Accordingly, per the above, IBM has breached its duty to perform in good faith under the SLA by willfully rendering imperfect performance and thus evading the intent of the parties' agreement.

390. IBM also breached the SLA by failing to provide the required Updates. Specifically, IBM failed to deliver the Updates developed by IBM Research Group in the NONSLAC code tree. *See* FOF ¶ 198. IBM also failed to deliver Updates developed outside IBM Research Group, including DeepQA Updates and upgrades to DeepQA functionality developed in the IBM Software Group and the IBM Watson Group. *See* FOF ¶¶ 138-139 & 164. These Updates include, but are not limited to, the blue-washed DeepQA code, Watson Discovery Advisor, Watson Engagement Advisor, Watson for Oncology, Natural Language Classifier, Document Conversion, Watson Discovery Service, Natural Language Understanding, Retrieve and Rank, Tone Analyzer, Watson Explorer, and Watson Knowledge Studio. *See* FOF ¶¶ 139, 224-282, 292-326. Accordingly, IBM breached Sections 1.1 and 2.1 of the SLA.

391. IBM has continued to breach the Agreement by failing to provide Updates to Nuance, including recently discovered and developed projects including Project Debater and Watson Assistant. *See* FOF ¶¶ 331-332.

392. Due to the fact that IBM was not forthcoming in discovery, there may be additional Updates developed by IBM that were not provided to Nuance. *See* FOF ¶¶ 327-337.

393. IBM is ordered to specifically perform its obligation under Section 1.1 and 2.1 to deliver all Updates as defined under the SLA including the NONSLAC code tree, the blue-washed DeepQA code, and all of the products and APIs identified above.

394. Because IBM failed to provide DeepQA Updates, a material obligation under the contract, Nuance has lost the opportunity to commercialize DeepQA for several years.

Accordingly, IBM's obligations under Section 1.1 and 2.1 of the SLA shall be extended for ten (10) years until September 30, 2030.

395. Further, given IBM's refusal to produce source code or other information regarding its development of question answering technology and its continuing development of products that utilize such functionality, FOF ¶¶ 185, 277, 284, & 327; Schnell Decl. ¶¶ 181-185, which also were not disclosed to Nuance, a special master shall be appointed to review IBM's product lines and determine whether additional, as-yet unidentified DeepQA Updates are owed to Nuance. Additionally, the court will be aided in ensuring complete compliance with its specific performance decree by appointing a special master with expertise to oversee this complex source code analysis.

XII. Nuance Timely Filed This Action

A. Requirement for Actual Knowledge

396. Under the SLA, "[n]either party may bring an action arising out of this Agreement, regardless of form, more than two years after the cause of action has accrued and the party obtained knowledge thereof." *See* JX001 at JX001.18.

397. As the Court previously ruled, suspicions are not enough to constitute actual knowledge. *See Nuance Commc'ns*, 2019 WL 2006180, at *8.

B. Nuance Did Not Have Actual Knowledge of IBM's Breach Until 2015

398. Although at times certain Nuance employees had suspicions that IBM might not be providing all of the Updates they were developing, every time Nuance questioned IBM as to whether Nuance was receiving all DeepQA Updates, IBM assured Nuance that they were. *See* FOF ¶¶ 200-213; McCann Tr. at 238:19-239:8; Sejnoha Tr. at 140:18-141:15 (noting that IBM "IBM assured [Nuance was] getting whatever was happening within the company though these updates ... [and] the content of those updates seemed to be diminishing in interest and innovativeness …

[thus Nuance's] sense of discomfort with the situation gradually increased, and more and more there were questions that we had about IBM's fulfillment of the spirit of the contract"). Therefore, Nuance's suspicions never rose to the level of actual knowledge. *See Nuance Commc'ns*, 2019 WL 2006180, at *8 ("[A]lthough Nuance did have serious questions as to whether IBM was providing Nuance with DeepQA updates from IBM Software prior to January 2015, its suspicions were not confirmed until sometime in 2015, in part because it received assurances from IBM that it was receiving all updates," and therefore "a reasonable jury could conclude . . . that Nuance did not 'obtain knowledge' until sometime in 2015 that it was not receiving, and would not receive, DeepQA updates developed outside [IBM Research Group]").

399. Nuance also did not have access to IBM's source code and had no way of verifying what IBM was doing on DeepQA. *See* McCann Tr. at 184:7-184:19; Sejnoha Tr. at 135:9-20; Bloom Decl. ¶ 36; Petro Decl. ¶ 21. Indeed, the industry feedback was that IBM was having difficulty with DeepQA outside of *Jeopardy!*. FOF ¶ 214. Therefore, Nuance did not know that IBM was developing Updates that it was withholding from Nuance.

400. IBM's practice of using "Watson" as a broad descriptor further prevented Nuance from assessing whether it was receiving all Updates it was entitled to under the SLA as Nuance was unable to discern whether Watson as advertised in the marketplace was connected to DeepQA. FOF ¶ 216. Furthermore, IBM's deliveries of DeepQA Updates to Nuance were delayed by the need to test the deliveries in IBM's "sandbox" prior to delivery. FOF ¶ 217. This delay in deliveries made it more difficult for Nuance to determine the work that IBM was doing on DeepQA.

401. Nuance did not learn that IBM was in fact withholding Updates to DeepQA until April 13, 2015. *See* Trial Tr. at 425:10-425:24 (William LaFontaine testimony); PX105 at PX105.001; Ricci Decl. ¶¶ 38 & 40.

402. Nuance's claims are timely because Nuance did not have actual "knowledge" of IBM's breach until 2015 and commenced this action less than two years later on June 30, 2016. *See* FOF ¶¶ 219-223.

C. Continuing Wrong Doctrine

403. Where a contract requires "continuing performance over a period of time, each successive breach may begin the . . . limitations [period] running anew." *Guilbert v. Gardner*, 480 F.3d 140, 150 (2d Cir. 2007) (because defendant employer's obligation to contribute $10,000 per year to a pension under an employment contract was a continuing one, plaintiff's claim for breach of contract for the failure to make those payments within six years of the filing of the complaint were timely); *see also Bulova Watch Co. v. Celotex Corp.*, 389 N.E. 2d 130, 132 (N.Y. 1979) (holding that separate breaches occurred each time defendant failed to meet its obligation to repair a bonded roof and that plaintiff's "claims arising within six years of the commencement of this suit [were] timely").

404. The continuing wrong doctrine is used "where there is a series of continuing wrongs and serves to toll the running of a period of limitations to the date of the commission of the last wrongful act." *Henry v. Bank of Am.*, 147 A.D.3d 599, 601 (N.Y. App. Div. 1st Dep't 2017). "In contract actions, the doctrine is applied to extend the statute of limitations when the contract imposes a continuing duty on the breaching party." *Id.*

405. The SLA calls for continuing performance—delivery of Updates—for a period of ten years. JX001 at JX001.253.

406. Each failure by IBM to deliver Updates to Nuance as required under the SLA is an independent, distinct wrong that constitutes repeated breaches of IBM's continuing obligation, which starts the limitations period running anew. *See Affordable Hous.*, 13 N.Y.S.3d at 878-80

(holding that a "new breach occurred for statute-of-limitations purposes each time the Town defendants allegedly failed to make a required monthly payment to the plaintiff").

407. Each Watson product or Additional API at issue in this case was released no earlier than two years before Nuance filed its complaint on June 29, 2016. *See* July 28 Trial Tr. at 106:18-23, 112:13-15, 122:1-2 (Rob High testimony) (testifying that IBM released Watson Engagement Advisor in late 2014 or early 2015, Watson Discovery Advisor in August 2014, and Tone Analyzer in February 2016); Liao Tr. at 86:22-23, 145:23-25, 175:16-21 (testifying that IBM launched Watson Discovery Service in December 2016, Natural Language Understanding in February 2017 and Watson Explorer in October 2014); PX107 (noting IBM released Natural Language Classifier on July 9, 2015); PX110 (noting IBM released Retrieve and Rank on September 24, 2015); Eggebraaten Decl. ¶ 4 (testifying that IBM released Watson for Oncology in the fourth quarter of 2014); PX174 (noting IBM released Document Conversion on December 17, 2015); PX117 (noting IBM released Watson Knowledge Studio on June 27, 2016). Therefore, even if the SLA's two-year limitations period was applicable (which it is not), it would not bar Nuance's claims.

D. Equitable Estoppel

408. Equitable estoppel is appropriate where: "(1) the defendant made a definite misrepresentation of fact, and had reason to believe that the plaintiff would rely on it; and (2) the plaintiff reasonably relied on that misrepresentation to his detriment." *Buttry v. Gen. Signal Corp.*, 68 F.3d 1488, 1493-94 (2d Cir. 1995); *see also Axiom Inv. Advisors LLC v. Deutsche Bank AG*, 234 F. Supp. 3d 526, 539-40 (S.D.N.Y. 2017) (denying motion to dismiss based on statute of limitations where: (1) defendant failed to disclose practice complained of by plaintiff; (2) defendant's explanations for practice when plaintiff inquired were pretextual and misleading; (3) plaintiff had no way of knowing it was being harmed by defendant's practice; and (4) plaintiff

acted with reasonable diligence commencing the lawsuit following news reports illuminating effects of the practice).

409. IBM knew that Nuance expected IBM to deliver all Updates to DeepQA, including those developed outside of IBM Research Group. *See* JX019 at JX019.001 ("I understand that Paul was clear he 'likes his current contract'….he may have to live with it as we end up cutting off all future working relationships."). IBM also knew that, without access to the NONSLAC code tree or IBM Software Group's fork of the code, Nuance had no way of knowing that IBM was withholding Updates. Nevertheless, when Nuance sought assurances that IBM was delivering all Updates, IBM repeatedly assured Nuance that it was. *See* FOF ¶¶ 200-213. And because Nuance could not verify what Updates IBM made to DeepQA, Nuance relied on IBM's misrepresentations. *See id.* at ¶¶ 214, 216-217. Nuance's reliance was to its detriment, as the lack of Updates made Nuance unable to commercialize the DeepQA code. *See* Ricci Decl. ¶¶ 31-32. Accordingly, IBM is equitably estopped from asserting a limitations defense.

XIII. Adverse Inferences Applied Against IBM

A. Legal Standard

410. The Federal Rules of Civil Procedure require that parties make certain disclosures to one another, including the identity of individuals "likely to have discoverable information . . . that the disclosing party may use to support its claims or defenses." Fed. R. Civ. P. 26(a)(1)(A)(i). In addition to these mandatory disclosures, parties "may obtain discovery considering any nonprivileged matter that is relevant to any party's claim or defense." Fed. R. Civ. P. 26(b)(1). Failure to disclose mandatory information required by the federal discovery rules can lead to sanctions. Fed. R. Civ. P. 37(c). Additionally, parties have a duty to preserve electronically stored information and failure to stake reasonable steps to preserve it can lead to sanctions. Fed. R. Civ. P. 37(e).

411. When a party fails to produce information or documents subject to the federal discovery rules, the court may infer that such failure demonstrates that the unproduced material was unfavorable to that party. *See Experience Hendrix LLC v. Chaplin*, 461 F. Supp. 2d 165, 172 (S.D.N.Y. 2006) ("[A]n adverse inference may be drawn . . . from a party's failure to produce evidence in breach of its discovery obligations . . . [and] the Court infers that the unproduced documents . . . would have supported [the other party]."); *see also Weeks v. ARA Servs.*, 869 F. Supp. 194, 195 (S.D.N.Y. 1994) ("Where relevant information . . . is in the possession or control of one party and not provided, then an adverse inference may be drawn that such information would be harmful to the party who fails to provide it."). The applicability of the adverse inference rule also does not rest upon the "existence of a subpoena compelling production of the evidence in question," but instead the rule is based on the notion that a party will introduce all evidence in its possession to strengthen its case. *Int. Union, United Auto., Aerospace and Agricultural Implement Workers of Am. v. NLRB*, 459 F.2d 1329, 1338 (D.C. Cir. 1972).

B. IBM's Failure to Timely Disclose Thomas Eggebraaten as a Trial Witness and Failure to Preserve and Produce His Relevant Documents

412. IBM did not disclose the identity of Thomas Eggebraaten as a testifying witness or even an individual with discoverable information until the evening that the parties' joint pre-trial order was due to the Court. *See* Decl. of Jessica L. Falk in support of Plaintiff's Motion to Strike Improper Testimony of Thomas J Eggebraaten (ECF No. 176) ("Falk Decl.") ¶ 15.

413. Mr. Eggebraaten testified at trial that he did not receive a litigation hold in this case and did not have his files collected, preserved, or reviewed. July 28 Trial Tr. at 174:2-4 & 174:20-176:4 (Thomas Eggebraaten testimony). IBM did not produce any of Mr. Eggebraaten's documents even though it was on notice that he had material relevant to this litigation. *See id.* Mr. Eggebraaten also testified that he was not contacted by IBM's counsel during the preparation of

interrogatory responses regarding Watson for Oncology—or for supplementation at any point, pursuant to IBM's continuing obligation to update these responses. July 28 Trial Tr. at 179:2-7 (Thomas Eggebraaten testimony).

414. Furthermore, Mr. Eggebraaten testified that the overwhelming majority of the individuals IBM identified in its interrogatory responses as having "worked on or contributed to the creation and/or development of the Watson for Oncology source code including Updates to the Watson for Oncology source code," never wrote source code for Watson for Oncology. *Id.* at 179:9-182:14. IBM did not identify Mr. Eggebraaten in these interrogatory responses. *Id.*

415. Failure to timely disclose mandatory material pursuant to Rule 26 and the failure to preserve and produce relevant electronically stored information are discovery violations potentially punishable by an adverse inference. *See* Fed. R. Civ. P. 37(c) & 37(e); *Experience Hendrix*, 461 F. Supp. 2d at 172.

416. Specifically, as a result of IBM's non-compliance with its discovery obligations, an inference in Nuance's favor attaches to the unproduced records that the documents support Nuance's theory of the case. *See Experience Hendrix*, 461 F. Supp. 2d at 172. Eggebraaten's testimony will be weighted to account for the fact that Nuance did not have access to relevant materials from his custodial files as these files were not preserved and produced and his identity was disclosed well after discovery had closed. *See* Falk Decl. ¶ 15; *see also Experience Hendrix*, 461 F. Supp. 2d at 172 ("an adverse inference may be drawn in appropriate circumstance from a party's failure to produce evidence in breach of its discovery obligations").

CONCLUSION

The above proposed findings of fact and conclusions of law demonstrate that Nuance is entitled to all Updates to DeepQA and its functionality developed throughout IBM, including new components and code, through September 30, 2030. These Updates include the

DomainIndependent_comp component, the blue-washed DeepQA code, Watson Discovery Advisor, Watson Engagement Advisor, Watson for Oncology, Natural Language Classifier, Document Conversion, Watson Discovery Service, Natural Language Understanding, Retrieve and Rank, Tone Analyzer, Watson Explorer, and Watson Knowledge Studio. A Special Master is also warranted to ensure that all Updates are provided to Nuance.

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/s/ David J. Lender

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